MCWP 3-12
Coordinating Draft

Marine Corps Tank Employment

U.S. Marine Corps

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Department of the Navy
Headquarters United States Marine Corps
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FOREWORD

1. Purpose.

Marine Corps Warfighting Publication 3-12, Marine Corps Tank Employment, details Marine Corps Doctrine and supporting tactics, techniques, and procedures for the employment of Marine tanks in support of the Marine Air Ground Task Force (MAGTF)

2. Scope

MCWP 3-12 is intended for commanders and staffs of Marine Corps combat, combat support, and combat service support units operating with or supporting Marine tank units. It describes how the Marine Corps employs tanks throughout the range of military operations and focuses on preparing, planning, and conducting MAGTF operations with tanks.

3. Supercession

MCWP 3-12 replaces FMFM 9-1, dated 1982.

4. Certification

Marine Tank Employment

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Chapter 1

Introduction

Introduction. The success of amphibious operations and subsequent operations ashore require the coordinated employment of all MAGTF resources: reconnaissance, infantry, aviation, tanks, artillery, engineers, assault amphibious vehicles and other combat support and combat service support units. All elements of the MAGTF are employed to achieve the effects of combined arms against enemy forces.

Combined arms is the full integration of combat arms in such a way that to counteract one, the enemy must become more vulnerable to another. The strengths of arms complement and reinforce each other. At the same time, the weaknesses and vulnerabilities of each arm are protected or offset by the capabilities of the other. Tank units provide the MAGTF commander the ability to attack, disrupt, and destroy enemy forces through firepower, shock effect, and maneuver in coordination with other elements of the MAGTF.

Section 1. Roles of Tank Units.

The tank is designed to be employed primarily as an offensive weapon, and regardless of the type of operation conducted (defensive or offensive). Tank units are employed throughout the range of military operations. The three major roles of tank units are:

- Maneuver Element. Tank units are organized to provide combat power to the division as a maneuver element or as a part of a maneuver element.
- Antiarmor Protection. Tank units participate as a part of the overall counter-mechanized effort of the landing force.
- Mechanized Operations. Tank units can be task organized to form the nucleus of a mechanized force or furnish units to provide support for a mechanized force.

Section 2. Characteristics of Tank Units.

To win in battle, leaders must have a clear understanding of the capabilities and limitations of their equipment. Appendix A provides a list of the specifications, characteristics, and significant features of the M1A1 main battle tank and supporting equipment. This appendix is a quick reference that will assist the Marine tanker and the MAGTF commander (with an attachment of tanks) in evaluating transportability, sustainment, and mobility considerations. The following are some of the capabilities and limitations for consideration prior to employing tank units into combat.

1201. Capabilities.

Tanks offer the MAGTF a vast array of capabilities: excellent cross-country mobility, sophisticated communications, enhanced target acquisition, lethal firepower, and effective armor protection. All of these characteristics are interrelated.

Armor-Protected Firepower. The armored vehicle is an integrated weapons system capable of defeating most targets on the battlefield. The tank main gun is a high velocity, direct fire weapon used primarily against enemy tanks and hard targets. The amount of

ammunition carried aboard the vehicle and the types available permit armored vehicles to engage a wide variety of targets for sustained periods of combat. Its armor affords protection to the components of the armored vehicle, including its crew, from the effects of small arms fire, shell fragments, and some direct hits, depending on the type and range of the enemy weapon. Its armor also allows the tank to close with the enemy and maneuver while under enemy fire or friendly close supporting fires with a degree of survivability that other weapons systems do not possess. The platform also provides a significant degree of protection for the crew while operating in an environment contaminated with chemical weapons.

Mobility. Tank units are capable of conducting mobile ground combat over a broad area of operations. Tank units can remain dispersed, yet quickly mass for employment at a decisive time and place. Tanks, by virtue of their full track, possess a high degree of cross-country mobility. In addition, global positioning systems (GPS) allow today's tanks to move to virtually any designated location with greater speed and accuracy than ever before. Tanks can quickly mass the effects of their weapon systems while remaining physically dispersed to limit effective enemy counteraction. When properly utilized, the tank's mobility allows it to deliver firepower against several enemy locations within a short period of time.

Shock Effect. The shock effect on the enemy that tank units can create is both physical and psychological. This shock effect is increased in proportion to the number of vehicles employed. Shock effect, in a properly executed assault, has a devastating effect on enemy morale and a favorable effect on friendly morale. To exploit tanks shock effect, aggressive employment of the combined arms team is essential.

Extensive communications. Radio is the primary means of communication for tank units. Each tank is capable of transmitting/receiving on one frequency while simultaneously receiving on another frequency. The use of visual signals and the single channel ground/airborne radio system (SINCGARS) facilitates rapid and secure communication of orders and instructions.

Flexibility. Tank units are capable of responding rapidly to the ever-changing environment of the battlefield. Units engaged with the enemy can, with the proper use of supporting arms, disengage and be given a new mission. Tanks can group, disperse, and quickly regroup again in response to changing tactical situations.

1202. Limitations

A clear understanding of the tank employment limitations enables commanders to both plan effectively and fully exploit the capabilities of tank units. Limitations fall into three general categories – those inherent to the vehicle, existing obstacles, and reinforcing obstacles.

Size. The size of a tank makes it difficult to conceal in some terrain. This limitation is substantially overcome by positioning tanks in areas that minimize their exposure to enemy observation until they are ready to be employed.

Weight. The weight of tanks prevents use of low capacity bridges and requires the use of special equipment and techniques for recovery of immobilized vehicles. Planning for the necessary support, as well as the careful selection of routes and areas of operation reduces this limitation.

Noise. The noise created from the operation of tanks will give warning of their presence. Surprise, however, may be achieved by moving tanks forward just prior to their commitment, and by advancing rapidly under the cover of supporting arms.

Visibility. Tank crews enhance visibility with vision devices. However, peripheral vision is limited. Unless a member of the crew is observing the sector in which hostile actions occur, it may go unseen. The tank is susceptible to ambush by tank-killer teams when operating in close terrain. It is also vulnerable to mechanical damage caused by terrain or obstacles hidden from view e.g. brush covered gullies. Conducting a detailed terrain analysis can reduce these limitations. Also, infantry should accompany tanks operating in close or broken terrain to protect them from ambush. There is a more detailed discussion of deadspace considerations in Chapter 9, Military Operations in Urbanized Terrain.

Fuel Consumption. The fuel consumption of a tank is high in comparison to wheeled vehicles. The tank crew can use the external auxiliary power unit (EAPU) during operational pauses to reduce the amount of fuel consumed. Careful planning and a coordinated logistics effort are required to insure that armored vehicles' fuel requirements do not impose an insurmountable logistics burden.

Maintenance. Tanks are complex and require time dedicated to maintenance. Tank vehicle crews accomplish preventive maintenance during halt, rest periods and periods of resupply without interrupting support functions. However, systematic relief of individual tanks or units is required to permit thorough maintenance. Failure of commanders to recognize or plan for this will result in unnecessary and excessive tank non-availability due to mechanical failure.

Existing Obstacles. Of all the limiting factors that inhibit tank vehicle operations, none has a more decisive effect than terrain. Terrain may dictate the number of tanks that can be employed, but it will seldom prohibit their employment entirely. The full striking power of tanks is best achieved over rolling terrain that permits massing and exploitation of their cross-country mobility. Nevertheless, between the extremes of terrain – rolling terrain as opposed to impassable terrain – there is considerable ground that can be negotiated by tanks. Heavy rainfall usually reduces the trafficability of an area and imposes restrictions on tank movements. Extremes in weather reduce the efficiency of tank crews. Although tanks have little difficulty in snow less than 24 inches deep, they tend to skid or slide off embankments and are unable to negotiate slopes when the snow becomes packed or icy. The limiting effects of terrain and weather can be reduced by

prior reconnaissance of tank routes, proper planning, and by providing for the reduction of existing obstacle that cannot be bypassed.

Reinforcing Obstacles. In past operations, the most effective reinforcing obstacle and the one most frequently employed, was the antitank minefield. Mines, whether arranged as a barrier or planted at random, can temporarily stop the forward movement of tanks. Other reinforcing obstacles frequently encountered that tend to restrict the movement of tanks are tank ditches, tank traps, and roadblocks. Normally, many of these obstacles are temporary deterrents that can be overcome by proper employment of organic weapons, equipment and personnel. Given time and resources, engineers can generally reduce even difficult obstacles.

Communications. The heavy reliance upon radio communications for command, control and coordination of tank units makes them vulnerable to enemy electronic warfare (EW) and/or signals intelligence efforts. Tank unit commander and tank crews must be able to operate in a hostile EW environment and employ communication security procedures to overcome this limitation.

Chapter 2

Mission and Organization of Tank Units

Section 1. Mission.

The mission of the tank battalion is to close with and destroy the enemy by using armor-protected firepower, shock effect, and maneuver and to provide anti-mechanized fire in support of the Marine Division.

Organization

A typical tank battalion consists of four tank companies, a Headquarters and Service Company, one antitank platoon and one scout platoon. The tank companies are the basic tactical unit with which the battalion accomplishes its mission. The antitank platoon provides anti-mechanized support to the battalion. The battalion scout platoon performs reconnaissance, provides limited security, and assists in controlling movement of the battalion. The tank battalion has 58 M1A1 tanks (with 120-mm guns), 26 TOW weapons systems, 4 armored vehicle launch bridges (AVLBs) with 8 bridges, and 6 M88A1 tank recovery vehicles.

Employment

The tank battalion is best employed as a maneuver element without detaching units. However, the GCE commander may create mechanized forces by task organizing tank, mechanized infantry, and other combat support and combat service support units based on mission, enemy, terrain and weather, troops and support available-time available (METT-T) Employment of the tank battalion must take advantage of the speed, mobility, and firepower of the organization.

Section 2.

2201. Organization of the Tank Battalion.

Tank Battalion Wire Diagram Here

Note: Insert Diagram from MCRP 5-12D.

Section 3. Battalion Commander and his Staff.

Commander. The commander influences the unit under his command by his personality, attitude, technical and tactical proficiency, and leadership. The commander discharges his responsibilities by sound planning, timely decisions, clear definitive orders, personal supervision, and exemplary leadership. The commander alone is responsible for everything that his unit does or fails to do. He cannot delegate his responsibility, or any part of it, although he may delegate his authority. In discharging his responsibility, the commander issues orders to subordinate units through the chain of command. The chain of command descends directly from him to his immediate subordinate commanders,

whom he holds responsible for everything that their units do or fail to do. The commander issues orders and instructions to his staff through staff channels.

Staff. The role of the staff is to assist and advise the commander in the exercise of command and control. The commander uses command and control, to make effective decisions, manage the uncertainty of combat, and to direct the successful execution of military operations. Functions common to all staff officers include: providing information and advice, making estimates, making recommendations, preparing plans and orders, advising other staffs and subordinate commands of the commander's plans and policies, and supervising the execution of plans and orders. The commander and his staff should be considered as a single entity. Staff officers may be authorized to act in the name of the commander in certain matters; however, no staff officer has any authority in his capacity as a staff officer over any subordinate unit of the command.

The staff officer ensures the commander has been provided the necessary, timely, and correct information to make the right decisions. The commander deliberately limits the amount and type of information received based on his priorities. Staff officers are assigned functional areas of responsibility to balance the division of labor and provide a single point of contact. There must be complete cooperation and coordination between the individual staff officers in accomplishing common tasks. Each staff officer is responsible for appropriate coordination on matters of mutual concern to other members of the staff. Staff officers cooperate and coordinate with higher, adjacent, supporting, supported and subordinate headquarters. Staff briefings are streamlined and limited to those absolutely necessary to the commander's decisionmaking process. Routine or scheduled situation briefs not required by the commander are cancelled or conducted internally for the benefit of the staff.

Executive Officer. The executive officer is second in command and the commander's principal staff assistant and advisor. He must be prepared to assume the commander's duties at any time. He directs, coordinates, and supervises the activities of the staff. He keeps the commander informed of current and developing situations, issues instructions to the staff to implement to the commander's decisions, studies all situations to ensure preparedness for future operations, and represents the commander when authorized. He is normally located in the main echelon, but may be otherwise positioned by the commander if the situation dictates. The commander and executive officer normally do not absent themselves from the planning sections at the same time unless the executive officer is placed in command of a force organized for a specific mission or task. During displacement of the main echelon, the executive officer normally moves with and oversees displacement to the next location unless the commander is present. In this instance, the executive officer may move with the last element to displace in order to supervise the overall effort.

S-1/Adjutant. The S-1/Adjutant is the principal staff officer in matters pertaining to personnel management and administration. He monitors the administrative chain from subordinate units to higher headquarters and keeps the commander abreast of the personnel situation within the unit. He recommends personnel policy and assists the

commander in handling personnel and morale factors that influence the combat effectiveness of the unit, including supervision of legal matters and disciplinary action.

S-2/Intelligence. The S-2/Intelligence Officer acts as the commander's intelligence assistant for the planning and supervision of command intelligence functions. He makes recommendations for the assignment of resources and the management and coordination of intelligence means and activities of other elements of the command. He has the responsibility for the production and dissemination of intelligence, counterintelligence, graphic intelligence aids, and intelligence training.

S-3/Operations. The S-3/Operations Officer is responsible for matters pertaining to the organization, training, and tactical operations of the unit. He is responsible for planning, coordinating, and supervising the tactical employment of units, integrating fires and maneuver, planning and supervising civil military operations, and determining priorities for allocation of personnel, weapons, equipment, and ammunition. Within the operations section are staff assistants dedicated to nuclear, biological and chemical (NBC) warfare defense, training, and for aviation.

Fire Support Coordinator. Within a Tank Battalion table of organization (TO) an artillery officer is assigned and designated as the FSC. The FSC is responsible for developing fire support plans that support the unit's scheme of maneuver, and making recommendations for priority of fire support to subordinate units.

Air Officer. The air officer is the subject matter expert on matters pertaining to aviation. He is a naval aviator or naval flight officer and is under the staff cognizance of the S-3. He is the officer responsible for coordinating tactical air assets and operations such and close air support (CAS) and acts as the point of contact for the two forward air controllers (FACs) assigned to the battalion. During the planning process, he provides input on aviation capabilities and availability as they affect courses of action and schemes of maneuver. He has the staff responsibility for coordination of aviation support in the unit fire support coordination center (FSCC).

NBC Officer. The NBC Officer is responsible for preparing plans, annexes, and unit SOPs on NBC defense. He develops and monitors NBC defense training of the unit. He supervises and coordinates operational and technical activities essential to NBC early warning and defense. He is under the cognizance of the S-3.

S-4/Logistics. The S-4/Logistics Officer has responsibility for determination of logistics and combat service support (CSS) requirements. He coordinates requirements for supply, transportation, health services, maintenance, and food service with the higher headquarters. He makes recommendations for the allocation of means, prepares computation of detailed requirements, and assists in the development of plans and orders. He constantly monitors responsiveness of support. Within the logistics section are staff assistants for embarkation, supply, motor transport, and maintenance management. A detailed discussion regarding the personnel resident within the battalion S-4 shop is included in *Chapter 6, Logistical Operations*.

Motor Transport Officer. The Motor Transport Officer is responsible for matters concerning control of transportation. He normally operates under the staff cognizance of the S-4.

Maintenance Management Officer. The Maintenance Management Officer is responsible to the commander, through the S-4, for the coordination and integration of all command maintenance efforts. The maintenance management officer's duties involve the management and coordination of the eight maintenance management functional areas. These functional areas are maintenance administration, personnel and training, records and reports, publications control, equipment and availability, preventive maintenance checks and services and corrective maintenance, supply support, and maintenance related programs.

S-6/ Communications and Electronics. The S-6/ Communications and Electronics Officer is responsible for planning and supervision of the installation, operation, and maintenance of communications systems; disseminating communications-electronics operating instructions; and managing the cryptographic material systems. He coordinates with the S-3 to ensure that communications planning and training are compatible with the overall plan. He recommends, in coordination with the S-3 and Headquarters and Service company commander, the location of key installations. To improve communications, he coordinates with the higher headquarters and communications officers of reinforcing, adjacent, and supporting /supported units.

Section 4. Command and Control.

2401. General.

The successful mechanized commander must see the battlefield and respond quickly. This can be achieved through an effective command and control system. The relatively large size, dispersion, and mobility of mechanized forces often pose command and control problems for the commander. There is no single solution for how a command and control system should be organized or function. Key variables such as echelons of command, personality of the commander, and METT-T will determine the composition of any organization's command and control system.

The commander positions himself wherever he can best influence the battle. He does this to gain as much situational awareness as possible while still being able to exercise command and control. During operations, the commander normally moves forward to personally observe and influence the course of the battle. During mechanized operations, the commander and his command group must be mounted in vehicles in order to keep up with his maneuver elements. The number of spaces in the vehicle will limit the size of the command group. The primary vehicle used for mobile combat operations centers in the AAV-C7.

2402. Command Echelons.

The commander establishes appropriate command echelons to assist him in the continuous collection, processing, and dissemination of combat information and orders. A Combat Operations Center is a unit headquarters where the commander and the staff perform their activities. Command echelons must have the requisite mobility to locate where the commander wishes and should be as mobile as the rest of the unit. Control of the battle is focused through only one command echelon at a time. The echelon in which the unit or subordinate commander is located, or from which such a commander operates, is called a command post. It is the commander's physical presence at a particular echelon that makes it a command post. Since each echelon is a likely objective of attack, both active and passive security measures should be taken to protect them.

Command Echelons. Depending on the situation, the commander may establish as many as three command echelons: the **tactical echelon**, the **main echelon**, and the **rear echelon**

Tactical Echelon. The tactical echelon provides the commander freedom of movement and the information required to maintain situational awareness. The tank battalion's table of equipment includes a section of tanks that enable the commander to establish the battalion's tactical command post or TAC CP. These tanks enable the commander to position himself forward, stay mobile, and maintain the communications and situational awareness necessary to command and control his unit. His survivability is directly related to their armor protection and capability to rapidly displace. He normally collocates with the main effort during critical events and focuses on the current operations of committed forces.

Main Echelon. The main echelon is designed, manned, and equipped to direct the actions of all organic, attached, and supporting units. The primary interests of the main echelon are monitoring and directing current operations and planning future operations. The main echelon includes a Combat Operations Center. The combat operations center (COC) is *the primary operational agency required to control the tactical operations of a command that employs ground and aviation combat, combat support, and combat service support elements or portions thereof. The combat operations center continually monitors, records, and supervises operations in the name of the commander and includes the necessary personnel and communications to do the same*. The COC includes the fire support coordination center.

When the commander is located forward during combat, he monitors communications between the combat operations center and higher and subordinate units. He will designate an individual; normally the executive officer or S-3, to act in his behalf in the event that communications between him and the combat operations center is lost.

Rear Echelon. The principal function of the rear echelon is to support combat operations by providing command and control of rear area operations. The S-1 and S-4 are normally located in the rear echelon. The rear echelon must be capable of monitoring the activities of the forward units and the other two echelons. Normally, the rear echelon is collocated with, or sited near combat service support units to facilitate

logistical efforts.

Increments. Command echelons can be split into **increments** to facilitate displacement and survivability (normally called the Alpha and Bravo Increments). In this method, the commander organizes two increments with nearly identical structure. The Alpha increment is usually composed of the S-2, S-3, FSC, and principle fire support liaison officers. Normally, the primary function of the Alpha command element is to command and control the current operation underway. The Bravo increment is usually composed of the assistants for each of the functional areas: S-2A, S-3A, Assistant FSC, etc. The Bravo command element monitors the current tactical situation and is immediately prepared to assume control in the event of the Alpha command element becomes disabled or during extended operations. The Bravo command may also be tasked to conduct future plans, maintain records, submit reports. When the force is extended the Bravo command element may be used as a relay to higher and supporting units. The Alpha/Bravo command elements may be consolidated when required by the tactical situation. Consolidation of the combat operations center allows full utilization of the entire staff for planning and the establishment of a single watch sections and provides more time to rest personnel. Well-developed SOPs and repeated rehearsals for passing C2 between increments are vital to success.

Displacements. Tactical considerations will dictate the frequency of echelon displacements. Common causes for displacement include: ground maneuver threatening the security of the echelon, enemy observation or attack by supporting arms, and degradation of communications between subordinates, higher, and adjacent units. Displacements should be executed at a time and in such a manner that creates the least possible disruption of operations. An echelon that has displaced assumes control only after communications are established at the new location. Normally, the tactical echelon displaces relatively frequently. Displacement of the main echelon is a more deliberate act. The main echelon normally displaces during lulls in the action or periods of inactivity. At such times, the main echelon normally displaces to a location in proximity to the tactical echelon in order to consolidate and allow for face-to-face coordination. Rear area echelons normally displace based on the ability to provide responsive logistical support, maintain security, and continue communications with subordinate, higher, and adjacent units.

2403. Combat Operations Center

Most units have established standard operating procedures for combat operations center operations. When task organized as a mechanized force these procedures may have to be modified to maintain the ability to echelon the command element, maintain a high degree of combat operations center mobility, and to make rapid decisions required in mechanized operations. The tank battalion combat operations center typically is comprised of an AAV-C7 and an AAV-P7 chase vehicle. The lack of space in these vehicles limits the number of personnel that can sit in these vehicles. This arrangement often requires staff members and commanders to personally monitor radios in order to facilitate rapid decision making. The high speed, high stress, and continuous nature of mechanized operations can create a great deal of physical and mental fatigue. When members of the combat operations center are tired their judgment can be impaired and they can make critical mistakes. To provide rest and allow for continuous operations, personnel assigned to the COC should be organized into work shifts. Rest should be

encouraged during extended halts, regardless of time of day, when their duties do not require them to be elsewhere.

Due to the limited space inside the AAV-C7 only individual combat gear is normally taken inside the vehicle. Other equipment and packs may be tied to the outside of the vehicle or carried on the chase vehicle.

The AAV-C7 has map boards mounted in front of the staff stations which can be removed and mounted on the outside of the vehicle for briefings. Ideally, S-2, S-3, and FSC maps/charts should be in close proximity to allow the commander and principal staff officers to view this information at one time and from a general location. During movement it is very difficult to write on the map boards. Consideration should be given to a system of maintaining and changing graphics while the vehicles are on the move. Until digital displays are fully fielded, it is recommended in the near term that units utilize a system of colored pins or stickies with unit symbols to track unit positions.

All staff officers operating inside the AAV-C7 must maintain a high level of awareness of the situation on the battlefield. The use of standard message forms or "yellow canaries" within the command vehicle is imperative when the primary officers are operating on a number of radio nets. Occasionally, staff members should conduct a "staff huddle" to coordinate efforts.

Personnel unfamiliar with the AAV-C7 often become frustrated by communication problems. Many of these problems are caused by operating at vast distances, engine noise when moving, located in a poor position for communications, and poor preventive maintenance. Some of the following considerations may alleviate these problems:

- Utilize communication personnel to position back up radios so they do not interfere with other vehicle radios. Do not operate strap-on radios unless the primary radio is not functional.
- When moving and engine noise interferes with an important transmission conduct a hasty and temporary halt. Sometimes just reducing the speed of movement will improve the transmission.
- Communication requirements should be considered when selecting a position for higher a temporary or extended halt. If communications is poor, often a move to another position will greatly improve communications.
- Occasionally, in the fast paced nature of a mechanized operation, time is not allowed for preventive maintenance. During extended halts back-up radios may be used while preventive maintenance is conducted on vehicle radios.
- Back up hand sets and headsets should be maintained in each command vehicle.

During a mechanized operation there are temporary halts and extended halts. The temporary halts are relatively short term where the staff personnel will be operating outside of the vehicle. During extended halts the chase vehicles will come forward and personnel in those vehicles will be employed in the combat operations center. Consideration should be given to notifying subordinate units and all vehicles in the

command group of the anticipated duration of the halt. Procedures can be developed which allow this notification to trigger other actions. For example, halts of more then 10 minutes might require troops to dismount and establish local security, or halts of greater than an hour might require laying wire.

Consideration should be given to creating standard procedures for immediate emplacement and displacement. These procedures might include designated "teams" that camouflage the vehicles, establish security, lay wire, remote antennas, and configure the COC for stationary operation. These and other procedures for emplacement and displacement should be trained and executed as drills.

Procedures that might be included in operations from a static position include the following:

- Establishment of a standard configuration of the COC.
- Establishment of standard watch sections.
- Establish standard locations for resting. A designated bivouac site with designated sleeping positions for each member of the command groups will simplify finding a needed member of the group in a hurry or during periods of darkness.
- Establish a method of providing power to the vehicle radios. The radios on the AAV-C7 can operate off the vehicle batteries, however they must be recharged periodically. When the engine is started there will be a brief disruption of all radios. The engine should not be started without the approval of the watch officer. While the engine is running, noise may become a problem. Another method is to slave another vehicle to the AAV-C7 to provide the required power. Any vehicle with a NATO slave adapter may provide the required power. Establish standardized force resupply system for the command group.

2404. Battalion Fire Support Coordination.

The tank battalion Fire Support Coordination Center is organized similarly to that of an infantry battalion. The tank battalion Fire Support Coordination Center (FSCC) normally consists of an air officer (AirO), an artillery officer (Fire Support Coordinator - FSC) and the battalion operations officer (S-3). While the battalion FSCC is built around this nucleus, the cell is augmented with personnel and equipment appropriate to the fire support coordination functions to be conducted. Sources of augmentation may include USMC and external sources. Examples include the provision of watchstanders, individuals with specific skills such as electronic warfare (EW), unmanned aerial vehicles (UAVs), air defense, or individuals with a required level of proficiency in fire support coordination.

Coordination during operations is dynamic in the FSCC as staff members are simultaneously required to plan fires, conduct targeting, and integrate fires with maneuver elements. The coordinating responsibility includes the requirement to disseminate timely fire support information, to institute coordination measures as

required, and to integrate fire support activities which affect two or more fire support agencies, subordinate elements, or adjacent units.

Duties of FSCC members.

Fire Support Coordinator (FSC) The FSC is an artillery Captain by T/O. His responsibilities include:

- Supervises the operation of the FSCC, including organizing and training personnel.
- Advising the Battalion Commander on all fire support matters.
- Developing the fire support plan based on the scheme of maneuver, the intelligence estimate, requests from subordinate units, and the fire support available.
- Coordinating all fire support within the Battalion zone of action.
- Processing of target information to include shellrep.
- Ensuring the safety of friendly troops from our own fire support.

Air Officer (AO) The AO is a pilot or Naval Flight Officer (NFO) Captain by T/O. His responsibilities include:

- Advising the Battalion Commander/FSC on all air support matters.
- Developing the air fire plan based on the scheme of maneuver, the intelligence estimate, assets available, and coordination with the FSC.
- Submitting air requests.
- Coordinating the actions of forward air controllers.

Artillery Liaison Officer (ALO) The Artillery Liaison Officer is normally a Lieutenant provided by a direct support artillery battalion. His responsibilities include:

- Advising the Battalion Commander/FSC on all artillery support matters.
- Developing the artillery fire plan based on the scheme of maneuver, the intelligence estimate, assets available, and coordination with the FSC.
- Passing requirements for support to the appropriate artillery Fire Direction Center for action.
- Coordinating artillery unit requirements with the Battalion Commander/FSC.
- Coordinating the actions of the artillery forward observers.

Mortar Liaison Non-Commissioned Officer. The Mortar Liaison NCO is normally a Sergeant provided by the Weapons Company of an Infantry Battalion. He will typically bring two mortar forward observers that will travel with the tank companies.

- Advising the Battalion Commander/FSC on all mortar employment issues.
- Developing the mortar fire plan based on the scheme of maneuver, the intelligence estimate, assets available, and coordination with the FSC.
- Coordinating the actions of the mortar forward observers.
- Coordinating mortar platoon requirements with the Battalion Commander/FSC.

Naval Gunfire Liaison Officer (NGLO) The NGLO is normally a Navy Lieutenant provided by the direct support artillery battalion. His responsibilities include:

- Advising the Battalion Commander/FSC on all naval gunfire support matters.
- Developing the naval gunfire support plan based on the scheme of maneuver, the intelligence estimate, assets available, and coordination with the FSC.
- Assisting in the calling for naval gunfire support.
- Coordinating the actions of the naval gunfire spot team.
- Passing requirements for support to the appropriate Naval Gunfire support ship.

Target Information Officer (TIO) The TIO will normally be the Battalion S-2 Officer. His responsibilities concerning target intelligence include:

- Disseminating target information and intelligence to the FSCC.
- Advising the Battalion Commander/FSC on enemy weapons capabilities
- Keeping appropriate records of targets.

Section 5 Command Relationships.

2501. General.

Command relationships are the interrelated responsibilities between commanders, as well as the authority of commanders in the chain of command. Command relationships and levels of authority, although authoritative, must be adapted to meet the requirements of the mission. Commanders must have the flexibility to establish non-standard relationships when required by the situation. Collectively, command relationships and levels of authority provide the flexibility necessary to organize forces to respond to all situations. Command relationships foster understanding and freedom of action, and establish the basis for interaction among unit commanders. Before discussing command and support relationships of tank units in detail, it is important to briefly describe the organizational nature of the MAGTF.

Marine Corps forces are organized as Marine-Air Ground Task Forces (MAGTF) and are either employed as part of an amphibious task force or separately as part of larger joint or combined forces. The MAGTF is the Marine Corps' principle organization for the conduct of all missions across the range of military operations. MAGTFs are balanced, combined arms forces with organic ground, aviation, and sustainment elements.

MAGTFs have no standard structure; rather the MAGTF provides a single commander a combined arms force that can be tailored to the situation.

2502. Command Relationship/Levels of Authority.

Subordinate elements of a task-organized force may be organic to the unit, attached to the unit, or tasked to provide support to the unit. These command relationships do not imply tactical missions or techniques of employment. Although the terms operational control (OPCON) and tactical control (TACON) are often used in joint and combined operations, they are not used to establish command relationships within the MAGTF. For more information on OPCON and TACON see JP 0-2, Unified Action Armed Forces. Within the Marine Corps, command relationships are termed as either command or support. When a Marine unit is under the command of a senior Marine unit, the subordinate Marine unit is either organic or attached. Support relationships are established when one element or unit of the MAGTF provides a required capability to another element.

a. Command. The concept of command is applicable to all elements of the MAGTF.

1. Concept. Command is the authority that a commander in the Armed Forces lawfully exercises over subordinates by virtue of rank or assignment. Command includes the authority and responsibility for effectively using available resources and for planning the employment of, organizing, directing, coordinating, and controlling military forces for the accomplishment of assigned missions. It also includes responsibility for health, welfare, morale, and discipline of assigned personnel. (JP 1-02)

2. Relationship. Marine Corps units are either organic or attached.

a. Organic. Organic is defined as assigned to and forming an essential part of a military organization. (JP 1-02) For example, the Tank Battalion is organic to the Marine Division.

b. Attach.

(1) Concept. Attach is defined as the placement of units or personnel in an organization where such placement is relatively temporary. (JP 1-02). When a tank unit is attached, it is under the command of the unit to which it is attached.

(2) Example. A tank company may be attached to an infantry battalion for an operation or a tank battalion may be attached to an infantry regiment. Attached units may be further attached to subordinate units. For example, an infantry regimental commander could further attach elements of a tank battalion to his subordinate battalions. In the case of attachment to an infantry unit, tank units are seldom attached below the battalion level. The reason for this is because infantry companies are not normally equipped to logistically support a tank platoon. The tank platoon normally acquires logistic support from the supported unit's battalion S-4.

(3) Responsibility. Unless the attachment orders qualify the degree of control involved, attachment of a tank unit to an infantry battalion or regiment implies that the infantry battalion or regiment assumes full responsibility for the tank unit's logistics, administration, training, and operations. However, the responsibility for matters relating to the transfer and promotion of personnel will normally be retained by the command to which the tank unit is organic. For example, an infantry battalion gaining an attached tank platoon is normally responsible for logistics, administration, training, and operations of that tank platoon. However, the platoon's parent unit, the tank battalion, will normally retain authority to transfer and promote personnel.

Chapter 3

Offensive Operations

Section 1. General

Offensive operations require the attacker to weight the main effort with superior combat power. Superior combat power allows the attacker to retain the initiative, set the tempo of operations, and achieve decisive results on the battlefield. Tank units contribute greatly to the combat power of the GCE in the offense by their inherent speed, mobility, armor-protected firepower, and shock effect. Tank units also provide the GCE with another key advantage: flexibility. They allow a commander to rapidly shift his main effort. The inherent flexibility of tank units allows the commander to maintain the momentum of his attack by quickly focusing the combat power of his force at various locations on the battlefield. For example, a tank unit can initially be committed to decisive engagement at one location on the battlefield, quickly disengage, and then rapidly maneuver to exploit success at another location on the battlefield.

Types of Offensive Operations. There are four general types of offensive operations - movement to contact, attack, exploitation, and pursuit.

Section 2. Movement to Contact

3201. Movement to Contact

Movement to contact. A movement to contact is an offensive operation conducted to develop the
situation and to establish or regain contact with the enemy. It is normally employed when the enemy situation is vague or not specific enough to conduct a deliberate attack. Most mechanized operations begin with the movement to contact, regardless of whether or not a deliberate attack is planned on the final objective. The movement to contact is characterized by decentralized control and rapid commitment of forces from the march. A movement to contact ends when the commander has to deploy the main body to conduct an attack or establish a defense.

A mechanized force assigned a movement to contact mission is normally given a zone of action or an axis of attack and an objective. Inherent to planning a movement to contact is the assumption that enemy contact will be made and actions on contact must be immediate and successful. A properly executed movement to contact allows the commander to make initial contact with minimum forces and to expedite the employment and concentration of the force.

Key considerations of a movement to contact include:

- Focus all efforts on finding and fixing the enemy.
- Initiate contact with the smallest element.
- Maintain freedom of action and execute actions on contact wherever the enemy is encountered.
- Concentrate the effects of overwhelming combat power at the decisive point.

A mechanized force conducting a movement to contact normally organizes in an approach march formation with advance, flank, and rear security elements protecting the main body.

Advance Guard. The advance guard protects its main body against ground observation and surprise from the front. It prevents premature deployment of the main body and provides adequate time and space for the main body to deploy for combat. The advance guard destroys enemy security forces and combat forces and reports and breaches obstacles within its capability. It may be directed to report and bypass small enemy forces. When the advance guard comes in contact with a superior enemy force, it will normally attempt to seize key terrain and conduct a hasty defense to facilitate deployment of the main body. It operates within supporting range of the main body. The advance guard prevents unnecessary delay of the main body and defers the deployment of the main body as long as possible. Reconnaissance elements normally operate to the front and flanks of the advance guard.

Flank and Rear Security. When adjacent units do not protect the flanks of a command it is necessary to provide protection by using a portion of the force to conduct flank security. Flank security missions include both guard and screen missions. The purpose of flank security is to protect the main body from observation, direct fire, and surprise attack. The mission and available combat power of the flank security element is METT-T dependent. Flank security elements are subordinate to the main body. They travel on routes parallel to the main body, either by continuously marching or moving by alternating bounds.

The rear security element protects the rear of the main body from attack and/or observation. When properly resourced the rear security element can be given a screen, guard, or cover mission.

Main Body. Ideally, the main body is unhindered during the movement to contact and is well positioned to conduct an attack against main enemy forces and seize the final objective. Elements from the main body may be deployed to eliminate small pockets of resistance bypassed by the advance guard. However, the main body must not be dissipated by piecemeal commitment.

Actions with Contact Imminent. The enemy situation will become clearer as the advanced guard conducts actions on contact. Key actions include developing the situation and refocusing reconnaissance, surveillance, and target acquisition assts. The mechanized force must remain flexible enough to rapidly exploit both intelligence and combat information. All RSTA assets are focused on determining the enemy's dispositions and ensuring the commitment of friendly forces under optimal conditions.

As contact becomes imminent, advance guards move forward on a progressively broader front. Based upon the situation, the advance guard is engaged in accordance with the plan of the commander or to seize terrain essential to the development of its main body. They should seize terrain affording essential observation.

Actions after Contact

Covering Force and Advance Guard. Once contact with strong enemy is made, measures are taken to develop the situation and protect the deployment of the mechanized force. There are five basic options available:

Hasty Attack. The hasty attack is characterized by rapid reconnaissance to determine the size and location of the enemy force to allow a rapid attack of the enemy by available forces.

Hasty Defense. The hasty defense is characterized by the seizure of key terrain to facilitate the deployment of the main body. The enemy reaction to such action frequently will indicate both the strength and disposition of the hostile force.

Report and Bypass. Bypass criteria are established by the commander dependent upon the factors of METT-T. Typically, commanders specify bypass criteria in terms of the size of the unit.

Delay. Units conduct delays when forces are insufficient to attack or defend or when the design of the operation dictates maneuvering the enemy into an area for subsequent attack.

Withdraw. This is normally the last option and only done when the enemy has an overwhelming superiority and the survival of the advance guard is at risk. The unit will normally withdraw only after receiving permission and then withdraw back toward the main body.

Knowledge of hostile dispositions, particularly enemy flank locations, is important to provide the essential information upon which the commander can base his plan of attack. When the security elements lack the strength to develop the situation fully, they may be reinforced by main body elements to obtain adequate knowledge of hostile dispositions before the coordinated attack is launched.

When strong resistance is met, reconnaissance units are quickly withdrawn and replaced or reinforced by the combat elements of the advance guard. Reconnaissance units then are employed on the flanks to screen the enemy's main force, conduct further reconnaissance, or to harass the hostile flanks and rear. Every effort is made to retain the initiative and to prevent the enemy from stabilizing the situation. Premature deployment of the main body is costly in terms of time, resources, and disclosure of the main effort.

While the main body is deploying for attack, the advance guard gains contact and continues to develop the enemy situation. Their mission is to determine the strength and dispositions of the enemy and the location of his flanks in order to provide the commander as complete a picture as possible before conducting an attack.

The Main Body. Maximum consideration is given to attacks upon the enemy flanks and rear before the enemy is prepared to counter these envelopments. Attacks by the main body may consist of a coordinated attack by the entire main body or an attack from march column conducted while the remainder of the main body deploys. Piecemeal commitment is to be avoided except when rapidity of action is essential due to fleeting windows of opportunity and when local combat superiority can be achieved at a decisive point. All available supporting arms are employed to suppress the enemy forces in contact, disrupt its attacking formations, and neutralize its indirect fire assets.

3202.Meeting Engagement.

A movement to contact often results in a meeting engagement. Meeting engagements are clashes that take place at unexpected places and times when forces are not fully prepared for battle. Such encounters often occur in small-unit operations and when reconnaissance has been ineffective. A meeting engagement may also occur when each opponent is aware of the other and both decide to attack without delay to obtain a tactical advantage. A meeting engagement may result in confusion, delay, or even in the premature employment of the main body before the commander has set conditions for decisive action. The premature employment of the main body slows the mechanized force's tempo of operations and may cause it to lose the initiative.

Section 3. Attack

The purpose of the attack is to defeat, destroy, or neutralize the enemy. An attack emphasizes maximum application of combat power, coupled with bold maneuver, shock effect in the assault, and prompt exploitation of success. Principal elements in an attack include: preventing effective enemy maneuver or counteraction, maneuvering to gain an advantage, delivering an overwhelming assault to destroy the enemy, and exploitation of advantages gained.

The commander will choose between conducting a hasty or deliberate attack based on time available.

Hasty Attack - A hasty attack is an attack in which preparation time is traded for speed to exploit opportunity. Typically, a hasty attack is the result of a meeting engagement. It is launched with the forces at hand and with minimum preparation. The goal is to destroy the enemy before he is able to concentrate or establish a defense. In order to maintain momentum or retain initiative, minimum time is devoted to preparation. Those forces readily available are committed immediately to the attack. A hasty attack seeks to take advantage of the enemy's lack of readiness and involves boldness, surprise, and speed to achieve success before the enemy has had time to improve his defensive posture. The speed, mobility and armor protected firepower offered by a tank unit is well suited for the hasty attack.

Deliberate Attack - A deliberate attack is characterized by preplanned coordinated employment of firepower and maneuver to close with and destroy the enemy. The

deliberate attack is a fully coordinated operation that is conducted during those situations where preparation time is available for lengthy reconnaissance, precise planning and rehearsals. Deliberate attacks normally include large volumes of supporting fires, main and supporting attacks, and deception measures.

Commanders conduct various types of attacks to achieve different effects:

- *Spoiling Attack.* A tactical maneuver employed to seriously impair a hostile attack while the enemy is in the process of forming or assembling for an attack. It is a preemptive, limited objective attack aimed at preventing, disrupting, or delaying the enemy's ability to launch an attack. It may be conducted like a raid with a planned withdrawal. Like the counterattack, the circumstances in which it is conducted normally preclude full exploitation. Like the counterattack, all or part of the reserve will normally conduct a spoiling attack. This may require another reserve force to be temporarily formed.

- *Counterattack.* Counterattacks are limited-objective attacks conducted by part or all of a defensive force to prevent the enemy from attaining the objectives of his attack. It may be conducted to regain lost ground, destroy enemy advance units, and wrest the initiative from the enemy. It may also be a precursor to resuming offensive operations. Normally the commander will attempt to retain his reserve to conduct a decisive counterattack once the enemy has committed his main force to the attack. Tank units counterattack by two methods: counterattack by fire and movement or counterattack by fire. The intent of the counterattack by fire and movement method is to close with and destroy the enemy. The intent of the counterattack by fire method is to use weapon standoff and/or cover to full advantage and destroy the enemy by direct fires.

- *Feint.* A feint is a limited objective attack made at a place other than that of the main effort with the aim of distracting the enemy's attention away from the main effort. It involves physical contact with the enemy. A feint must be sufficiently strong to confuse the enemy as to the location of the main effort. Ideally, a feint causes the enemy to shift forces to the diversion and away from the main effort. Feints are usually shallow, limited-objective attacks conducted before or during the attack of the main effort. The employment of a tank unit in this role must be heavily weighed against the loss of combat power that is then made unavailable to the main effort.

- *Demonstration.* Demonstrations are operations designed to divert enemy attention to allow decisive action elsewhere. A demonstration is a show of force that threatens an attack at another location but does not make contact with the enemy. The commander executes a demonstration by an actual or simulated massing of combat power, troop movements, or some other activity designed to indicate the preparations for or beginning of attack at a point other than the main effort. The employment of a tank unit in this role must be weighed with the potential loss of combat power that could be applied to the main effort.

- *Reconnaissance in Force.* The reconnaissance in force is a deliberate attack by major forces to obtain information and to locate and test enemy dispositions, strengths, and reactions. While the primary purpose of a reconnaissance in force is to gain information, the commander must be prepared to exploit opportunity. The protection inherent with the tank battalion can be used to protect the force, however if the situation warrants, it can also exploit any success. A reconnaissance in force usually develops information more rapidly and in more detail than other reconnaissance methods. The reconnoitering force must be of a size and strength to cause the enemy to react strongly enough to disclose his locations, dispositions, strength, planned fires, and planned use of the reserve Since a reconnaissance in force is conducted when knowledge of the enemy is vague, combined arms forces containing tanks are often employed. Such a force is capable of disengagement if superior enemy forces are encountered.

- *Raid.* A raid is an attack, usually small scale, involving a penetration of hostile territory for a specific purpose other than seizing and holding terrain. It ends with a planned withdrawal upon completion of the assigned mission. The organization and composition of the raid force are tailored to the mission. Raids are characterized by surprise and swift, precise, and bold action. Tanks can be employed on mechanized raids to destroy enemy installations and facilities, disrupt enemy command and control or support activities, divert enemy attention, and secure information.

Section 4. Exploitation

Exploitation is an offensive operation that usually follows a successful attack and is designed to disorganize the enemy in depth. Exploitation extends the initial success of the attack by preventing the enemy from disengaging, withdrawing, and reestablishing an effective defense. A mechanized force is ideally suited for exploitation operations because of its inherent speed, mobility and shock action. The tank battalion should be held in reserve, when working with non-mechanized forces, and committed to an exploitation operation after a deliberate attack. The objective of the exploitation is the destruction of enemy forces to the point where he has no alternative but surrender or flight.

The commander must be prepared to exploit every attack without delay. In the hasty attack, the force in contact normally continues the attack, transitioning to exploitation. In the deliberate attack, the commander's principal tool for exploitation is normally the reserve. The reserve is generally positioned where it can exploit the success of the main effort or supporting efforts. Typical missions for the exploitation force include cutting lines of communication, isolating and destroying enemy units, and disrupting enemy command and control. The psychological effect of exploitation creates confusion and apprehension throughout the enemy force, reduces the enemy capability to react, and may be decisive. Enemy forces, which cannot jeopardize the mission, are suppressed, bypassed, and reported to higher headquarters for clearing by follow on forces.

Commanders of committed forces act quickly to capitalize on local successes. When possible, the force leading the attack continues directly into exploitation. If that is not feasible, the commander passes fresh forces (follow and assume) into the lead. Follow and support forces are assigned missions to assist exploiting forces by relieving them of tasks that would slow their advance.

The commander exploits opportunities afforded by the situation. Opportunities for exploitation are indicated when:

- The enemy is having difficulty maintaining his position.
- There is a significant increase in the number of prisoners captured.
- Enemy units disintegrate after initial contact.
- Enemy lacks an organized defense.
- There are confirmed reports of the capture of or absence of enemy leaders.
- There is an increase in abandoned material.
- Equipment from various units is intermixed in formations or columns.
- Enemy fire decreases in intensity and effectiveness.
- Enemy artillery, C^2 facilities, and supply dumps are overrun.

Once the exploitation is begun, it is carried out to the final objective. Exploitation continues day and night. The enemy is given no relief from offensive pressure. The exploiting force retains terrain only as necessary to accomplish its mission. The exploiting force commander must be careful not to dissipate combat power in achieving minor tactical successes or in reducing small enemy forces.

Exploitation should be decentralized. The commander maintains sufficient control to alter the direction of the command or to prevent its overextension. He relies on his subordinates to find the fastest way to their objectives, to deploy as necessary to fight, and to seize all opportunities to destroy the enemy and accelerate the tempo of operations. The commander uses minimum control measures, but issues clear instructions concerning seizure of key terrain and the size of enemy forces, which may be bypassed. The exploitation force and the follow and support force must maintain direct communications.

The commander must exercise aggressive and demanding leadership to keep units advancing. When fatigue, disorganization, or attrition has weakened the force, or when it must hold ground or resupply, the commander should exploit with a fresh force. Overextension is a risk inherent to exploitation. While commanders must be concerned about overextension, they must also guard against being overcautious. Exploitation ends when the enemy loses his ability and will to fight; enemy resistance increases requiring deliberate attack; or the force conducting the exploitation can no longer be supported or sustained.

Section 5. Pursuit

A pursuit is an offensive operation designed to catch or cut off a hostile force attempting to escape, with the aim of destroying it. The pursuit often develops after a successful exploitation operation. The difference between exploitation and a pursuit is the condition of the enemy. The purpose of the pursuit is annihilation of the enemy; therefore forces are orientated on the enemy rather then the seizure of terrain. Like exploitation, pursuit requires broad decentralized control and rapid movement.

The decision to conduct a pursuit operation is made when the enemy has lost the ability to defend or delay and begins withdrawing in a disorganized manner or begins an organized withdrawal under pressure. This decision and its execution must be done quickly, before the enemy can regain control or organize a defense, or the opportunity will be lost.

Unlike the exploitation, in which the attacking force may or may not focus on the enemy force, the attacker in a pursuit focuses on catching and destroying the fleeing enemy force. A pursuit follows a successful attack or exploitation and is ordered when the enemy cannot conduct an organized defense and attempts to disengage. Direct pressure against the retreating forces must be combined with an enveloping or encircling maneuver to place troops across the enemy's lines of retreat. It becomes apparent that enemy resistance has broken down entirely and the enemy is fleeing the battlefield, any type of offensive operation can transition to a pursuit.

During the pursuit, commanders conduct air and ground operations to intercept, capture, or destroy the enemy. The air combat element can also interdict fleeing enemy forces. Unlike exploitation, commanders can rarely anticipate pursuit, so they do not normally hold forces in reserve solely to accomplish this mission. Therefore, commanders must be agile enough to react when the situation presents itself. During a pursuit the commander task organizes the force into a direct pressure force and an encircling force:

Direct Pressure Force. The mission of the direct pressure force is to prevent the enemy disengagement and subsequent reconstitution of the defense. Leading elements of the direct pressure force move rapidly, on all available routes, containing or bypassing small enemy forces that are reduced by follow and support forces. The direct pressure force must have sufficient combat power to maintain pressure on the enemy; it attacks on a broad front and provides relentless pressure on the enemy.

Encircling Force. The mission of the encircling force is to get behind the enemy and block his escape so that he can be destroyed between the direct pressure force and the encircling force. If the encircling force cannot outrun the fleeing enemy force, it attacks the flank. The encircling force must have continuous fire support and greater mobility than the enemy, which lends it to being a mechanized force. The encircling force may seize deep blocking positions to prevent the enemy escaping. This may require accepting the risk of moving without flank security.

Like exploitation, pursuit tests the audacity and endurance of Marines and leaders alike. Both operations risk disorganizing the attacker as well as the defender. Extraordinary

physical and mental effort is necessary to sustain pursuit momentum, transition to other operations, and translate tactical success into operational or strategic victory. Fatigue, dwindling supplies, diversion of friendly units to other tasks, and approaching darkness (under certain conditions) may all be reasons to discontinue the attack. The commander must insist on continuous pursuit as long as the enemy is disorganized and friendly forces can continue.

Section 6. Combat Formations

Tank units use formations to facilitate positive command and control and to avoid confusion. Formations also enhance speed and security and improve the ability to react to anticipated situations. Like movement techniques, the formation that is selected is determined utilizing a METT-T analysis. Again, the commander must continuously analyze his situation and be flexible enough to change formations as the situation changes. *Formations are not rigid*. Subordinate commanders down to individual tanks must have the freedom to adjust to the terrain and/or the enemy situation. The battalion uses formations for several purposes:

- Establish the relationship of one unit to another on the ground.
- Allow the company to position firepower where it is needed in support of the direct fire plan.
- Establish responsibilities for sector security among platoons.
- Facilitate the execution of battle drills and directed COAs.

Formations (like movement techniques) are planned based on where enemy contact is expected and how the commander expects to react to the contact. The commander of the mechanized force must evaluate the situation and determine which formation best suits the mission and the situation.

It is not necessary for the all of the company formations to be the same within the battalion formation. It is critical, however, for the company commanders to coordinate their formation with those of other elements of the mechanized force. A parallel consideration is that while the battalion formation establishes the relationship between the battalion's companies, the actual positioning of platoons within each company is dictated by the company formation. In some cases, the company may use the same formation as the battalion (for example, the companies may use the column formation within a battalion column). In other situations, however, battalion and company formations may be different as a result of METT-T factors (such as the companies moving in wedge formations within a battalion vee.)

An important consideration in movement planning and execution is that formations are not rigid. Spacing requirements, as well as other METT-T considerations, will require the battalion commander and subordinate leaders to adapt the basic formations as necessary. They must be ready to adjust the distance between companies and individual platoons based on terrain, visibility, and mission requirements.

NOTE: The formations shown in illustrations in this chapter are examples only; they generally are depicted without consideration of terrain and other METT-T factors, which are always the most crucial element in the selection and execution of a formation. Commanders must be prepared to adapt their choice of formation to the specific situation.

COLUMN - THE column is used when speed is critical, when the battalion is moving through restricted terrain on a specific route, and/or when enemy contact is not likely. Each company normally follows directly behind the company in front of it. If the situation dictates, however, platoons can disperse laterally to enhance security; Figure 3-1 illustrates this type of column movement. The column formation has the following characteristics, advantages, and limitations:

- Provides excellent control and fires to the flanks.
- Permits only limited fires to the front and rear.
- Is easy to control.
- Provides extremely limited overall security.
- Is normally used for traveling only.

Figure 3-1. Tank Unit in column formation with dispersal for added security.

WEDGE - The wedge formation, illustrated in Figure 3-2, is often used when the enemy situation is unclear or contact is possible. In the battalion wedge, the lead company is in the center of the formation, with the remaining companies located to the rear of and outside the lead company. The wedge has the following characteristics, advantages, and limitations:

- Permits excellent fires to the front and good fires to the flanks.
- Is easy to control.
- Provides good security to the flanks.
- Can be used with the traveling and traveling overwatch techniques.
- Allows rapid transition to bounding overwatch.

Figure 3-2. Tank Unit in wedge formation.

VEE - The vee formation, illustrated in Figure 3-3, is used when enemy contact is possible. In the battalion vee, the center company is located in the rear of the formation, while the remaining companies are to the front of and outside the center company. The vee has the following characteristics, advantages, and limitations:

- Permits more firepower to the front than the wedge and affords good fires to the flanks.

- Is more difficult to control than the wedge and makes it more difficult for vehicles to maintain proper orientation.
- Allows one unit in the formation to maintain freedom of maneuver when contact occurs.
- It facilitates rapid deployment into any other formation.
- Can be used with the traveling and traveling overwatch techniques.
- Allows rapid transition to bounding overwatch.

Figure 3-3. Tank Unit in vee formation.

LINE - The line formation, illustrated in Figure 3-4, is primarily used when a unit or element is crossing a danger area or needs to maximize firepower to the front. In the battalion line, companies move abreast of one another and are dispersed laterally. The line formation has the following characteristics, advantages, and limitations:

- Permits maximum fires to the front or rear, but minimum fires to the flanks.
- Is difficult to control.
- Is less secure than other formations because of the lack of depth.
- Is the most difficult formation from which to make the transition to other formations.
- May be used in the assault to maximize the firepower and/or shock effect of the heavy company. This is normally done when there is no more intervening terrain between the unit and the enemy, when antitank systems are suppressed, and/or when the unit is exposed to artillery fire and must move rapidly.

Figure 3-4. Tank Unit in line formation.

ECHELON - The echelon formation, illustrated in Figure 3-5, is used when the battalion wants to maintain security and/or observation of one flank and enemy contact is not likely. The battalion echelon formation (either echelon left or echelon right) has the lead company positioned farthest from the echeloned flank, with each subsequent company located to the rear of and outside the company in front of it. The echelon formation has the following characteristics, advantages, and limitations:

- Is difficult to control.
- Affords excellent security for the higher formation in the direction of the echelon.
- Facilitates deployment to the echeloned flank.

Figure 3-5. Tank Unit in echelon right formation.

COIL AND HERRINGBONE - The coil and herringbone are battalion or below-level formations, employed when elements of the battalion are stationary and must maintain 360-degree security.

Section 7. Forms of Maneuver

3701. General

Maneuver is the employment of forces on the battlefield through movement in combination with fire (or fire potential) to achieve a position of advantage in respect to the enemy in order to accomplish the mission. Forms of maneuver are the general orientations that a commander gives to his forces approaching an enemy in offensive operations. The basic forms of maneuver are: frontal attack, envelopment, flanking attack, penetration, turning movement and infiltration

Frontal Attack

A frontal attack is an offensive maneuver in which the main action is directed against the front of the enemy force. This is the least desirable form of maneuver for a mechanized force because it attacks into the enemy's strength and does not take full advantage of tank's ability to maneuver.

The advantages of a mechanized force conducting a frontal attack are:

- Greater combat power than pure infantry forces.
- Inherent speed reduces exposure time to enemy fire.
- Vehicle armor reduces effects of enemy indirect fire.

3702. Penetration

A penetration is a form of the offensive, which seeks to break through the enemy's defense and disrupt the defensive system. The purpose of a penetration is to break through the enemy's main defenses, in effect creating an assailable flank where none existed before.

A penetration generally occurs in three stages:

- Rupturing the position.
- Widening the gap.
- Seizing the objective.

The main effort of a penetration is made by concentrating overwhelmingly superior combat power on a narrow front and in depth. A penetration is appropriate when the enemy is overextended, when his flanks are secure, or when there is no assailable flank.

3704. Envelopment

An offensive maneuver in which the main attacking force passes around or over the enemy's principle defensive positions to secure objectives to the enemy's rear. This is the most desirable form of maneuver for a mechanized force because it utilizes maneuver and speed to avoid enemy strengths and in doing so destroys the enemy's cohesion.

The advantages of a mechanized force conducting an envelopment are:

- Greater speed required to surprise the enemy from an unexpected direction.
- Has required ground mobility to rapidly seize deep objectives while providing a greater threat when conducting a turning movement.

An envelopment is a form of offensive maneuver by which the attacker bypasses the enemy's principal defensive positions to secure objectives to the enemy's rear. An envelopment compels the defender to fight on the ground of the attacker's choosing. It requires surprise and superior mobility relative to the enemy. In mechanized tactics, an envelopment normally requires a base of fire element and a bounding element. The bounding element avoids the enemy's strength enroute to this objective. The base of fire element fixes the enemy's attention to his front, forcing the enemy to fight in two or more directions simultaneously to meet the converging efforts of the attacks.

3705. Flanking Attack

A flanking attack is an offensive maneuver directed at the flank of the enemy. It attempts to strike the enemy's main position from an unexpected direction. Envelopment aims at passing around or over the enemy's main position toward an objective in the rear. A flanking attack is similar to an envelopment but is conducted on a shallower axis and is usually less decisive and less risky than a deeper attack. The flanking attack, like the envelopment, normally requires a main and supporting attack.

A flanking attack seeks to strike the enemy's main force while avoiding the frontal orientation of the main weapon systems. This is a more desirable technique than the frontal attack because it takes advantage of the mechanized force's mobility. The advantages of a mechanized force conducting a flanking attack are:

- Greater speed enables the force to maneuver to the enemy's flank before he can react.

- Greater firepower enables the force to over come weaker enemy defenses on their flanks.

3706. Turning Movement.

A turning movement is a form of offensive maneuver in which the attacker passes around or over the enemy's principal defensive positions to secure objectives deep in the enemy's rear. Normally, the main effort executes the turning movement as the supporting effort fixes the enemy in position. The main effort seizes objectives so deep that the enemy is forced to abandon his position and divert major forces to meet the threat. Unlike an envelopment, the main effort usually operates at such a distance from the supporting effort force that mutual support is unlikely. Therefore, the main effort must be self-sufficient and reach the objective before becoming decisively engaged. Seldom would a turning movement be executed by a MAGTF less than MEF sized. Typical objectives of the main effort in a turning movement that are ideally suited for mechanized forces:

- Critical logistics sites
- Command and Control Nodes
- Lines of Communication

3707. Infiltration

Infiltration is a form of maneuver in which forces move covertly through or into an enemy area to attack positions in the enemy's rear. Forces move over, through, or around enemy positions without detection to assume a position of advantage over the enemy. The commander orders an infiltration to move all or part of his force through gaps in the enemy's defense to:

- Achieve Surprise
- Attack enemy positions from the flank or rear
- Occupy a position from which to support the main attack by fire
- Secure key terrain
- Conduct ambushes and raids in the enemy's rear are to harass and disrupt his command and control and support activities.
- Cut off enemy forward units.

Infiltrations normally take advantage of limited visibility, rough terrain, or unoccupied or unobserved areas. Theses conditions often allow undetected movement of small elements when the movement of the entire force would present greater risks. Infiltrating forces may depend heavily on aviation forces for aerial resupply and close air support.

Chapter 4

Defensive Operations

Section 1. General.

4101. General.

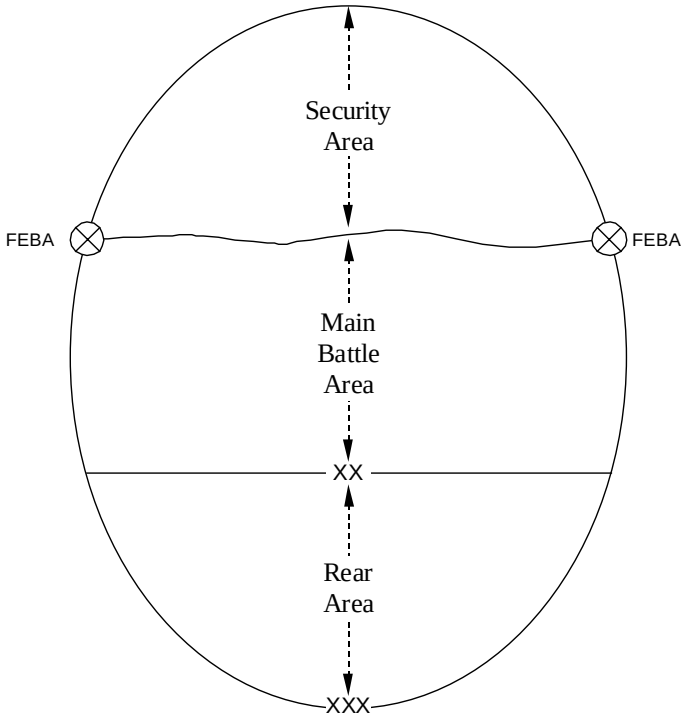
The purpose of the defense is to force the attacker to reach his culminating point without achieving his objectives, to gain the initiative for friendly forces, and to create the opportunity to shift to the offense. The essence of defensive tactics is to place the enemy into position that permits his destruction through the intelligent use of terrain and firepower, thereby creating favorable conditions for counterattack and resumption of the offense. Defensive operations achieve one or more of the following:

- Destroy the enemy.
- Weaken enemy forces as a prelude to the offense.
- Cause an enemy attack to fail.
- Gain time.
- Concentrate forces elsewhere.
- Control key or decisive terrain.
- Retain terrain.

In the defense, tank units are employed to take maximum advantage of their inherent, speed, mobility, armor-protected firepower and shock effect. Tank units are ideally suited to conducting spoiling attacks and counterattacks, thereby providing offensive action during a defensive battle. They also provide long-range direct fire capability into engagement areas and have the capability to engage both ground and air targets.

4102. Organization of the Battlespace

During defensive operations, the commander organizes his battlespace into three areas in which the defending force performs specific functions. (See figure.) These areas can be further divided into sectors. A defensive sector is an area assigned to a subordinate commander in which he is provided the maximum latitude to accomplish assigned tasks in order to conduct defensive operations. The size and nature of a sector depends on the situation and the factors of METT-T. Commanders of defensive sectors can assign their subordinates their own sector. The three areas are the: Security Area, Main Battle Area, and the Rear Area.



Organization of the battlespace.

Security Area

The security area is that area that begins at the forward edge of the battle area (FEBA) and extends as far to the front and flanks as security forces are deployed, normally to the forward boundary of the area of operations. Forces in the security area conduct reconnaissance to furnish information on the enemy and delay, deceive, and disrupt the enemy. The commander adds depth to the defense by extending the security area as far forward as is tactically feasible.

Actions in the security area are designed to cause the enemy to prematurely deploy into their attack formations and disrupt the enemy's plan of attack. Slowing the enemy's attack enables our forces, particularly Marine aviation, to strike the enemy critical vulnerabilities (i.e., movement, resupply, fire support, and command and control).

Main Battle Area

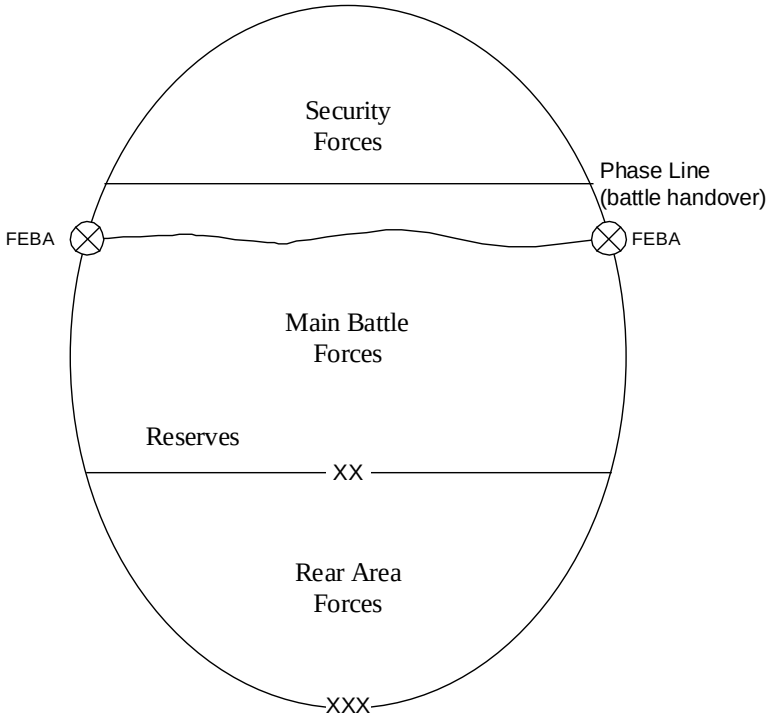
The main battle area is that portion of the battlespace in which the commander conducts close operations to defeat the enemy. Normally, the main battle area extends rearward from the FEBA to the rear boundary of the command's subordinate units. The commander positions forces throughout the main battle area to defeat, destroy or contain enemy assaults. Reserves may be employed in the main battle area to destroy enemy forces, reduce penetrations, or regain terrain. The greater the depth of the main battle area, the greater the maneuver space for fighting the main defensive battle.

Rear Area

The rear area is that area extending forward from a command's rear boundary to the rear of the area of responsibility of the command's subordinate units. This area is provided primarily for the performance of combat service support functions. Rear area operations include those functions of security and sustainment required to maintain continuity of operations by the whole force. Rear area operations protect the sustainment effort as well as deny use of the rear area to the enemy. The rear area may not always be contiguous with the main battle area.

4103. Organization of the Force

During defensive operations, the commander organizes his force as follows:



Organization of the force.

Security Forces

The commander uses security forces forward of the main battle area to delay, disrupt, and provide early warning of the enemy's advance and deceive him as to the true location of the main battle area. These forces are assigned cover, guard, or screen missions. Operations of security forces must be an integral part of the overall defensive plan. To ensure optimal unity of effort during security operations, a single commander is normally assigned responsibility for the conduct of operations in the security area. The element of the MAGTF assigned as the security forces is dependent on the factors of METT-T.

The commander seeks to engage the enemy as far out as possible. Suppression and obscuration fires are employed to facilitate maneuver of the security force. Maximum use may be made of all fire support assets to disrupt and destroy enemy formations as they move through the security area approaching the main battle area. Obstacles and barriers are positioned to delay or canalize the enemy and are covered by fires to destroy him while he is halted or in the process of breaching. The commander may assign the following missions to security forces:

- **Screen**. A security element screens a stationary force by establishing a series of positions along a designated screen line. The positions are located to provide overlapping observation. Areas that cannot be observed from these positions are normally patrolled. Screening forces report any sightings of enemy activity and engage enemy forces with fires. Maintaining contact, the screen falls back along previously reconnoitered routes to subsequent positions. Screening forces should avoid becoming decisively engaged.
- **Guard**. A security element guards a force by establishing a series of mutually supporting positions. The guard may establish a screen line forward of these positions. These positions immediately report any enemy contact and engage with fires at maximum range. The guard defends in place, attacks, or delays to rearward positions. Routes and subsequent positions should have been previously reconnoitered.
- **Cover**. Covering forces compel the enemy to deploy prematurely; confirm the direction and strength of the enemy attack; conduct counter-reconnaissance; destroy the enemy advance guard; canalize the enemy advance in accordance with the commander's plan; and provide the main force time to react. A covering force should be a self -sufficient combined arms force that is large enough to convince the enemy that they are the main battle force.

The security force engages the enemy first, screening, guarding, and covering as ordered. Normally, the commander designates the security force as his initial main effort. This force maintains contact with the enemy while falling back under pressure. At a predetermined location, normally a phase line designated as a handover line, control of the battle is transferred to the main battle force. A handover line is a control feature; preferably following easily defined terrain features, at which the responsibility for the conduct of combat operations is passed from one force to another. The transfer of control must be carefully coordinated. The main battle force supports the disengagement of the security force as it withdraws in preparation for its subsequent mission. The commander may shift the main effort to the appropriate element of the main battle force. As the enemy's advance force approaches the main battle area, execution of the defensive battle becomes increasingly decentralized.

At some point, the defending commander must plan for the enemy force breaking through the security forces and approaching the main battle area. This requires transitioning friendly forces and control of the battle from security forces to the main battle force. Whenever the battle is transitioned, it requires coordination from the highest common commander.

Main Battle Forces

Main battle forces engage the enemy to slow, canalize, disorganize, or defeat his attack. The commander positions these forces to counter the enemy's attack along the most likely or most dangerous avenue of approach. As in offensive operations, the commander weights his main effort with enough combat power and the necessary support to ensure success. When the enemy attack has been broken, the commander executes his plan to exploit any opportunity to resume the offensive.

Main battle forces engage the enemy as early as possible unless fires are withheld to prevent the loss of surprise. Commanders make maximum use of fires to destroy and disrupt enemy formations as they approach the main battle area. As the enemy closes, he is subjected to an ever-increasing volume of fires from the main battle area forces and all supporting arms. Again, obstacles and barriers are used to delay or canalize the enemy so that he is continually subjected to fires.

Combat power that can be concentrated most quickly, such as fires, is brought to bear while maneuver units move into position. The defender reacts to the enemy's main effort by reinforcing the threatened sector or allowing the enemy's main effort to penetrate into engagement areas within the main battle area to cut him off and destroy him by counterattack. Main battle forces maintain an offensive spirit throughout the battle, looking to exploit any advantageous situations.

A counterattack is an attack by part or all of a defending force against an attacking enemy force, for such specific purposes as regaining ground lost or cutting off and destroying enemy advance units, and with the general objective of denying to the enemy the attainment of his purpose in attacking. In many cases, the counterattack is decisive action in defensive operations. It is the commander's primary means of breaking the enemy's attack or of regaining the initiative. Once commenced, the counterattack is the main effort. Its success depends largely on surprise, speed, and boldness in execution. A separate counterattack force may be established by the commander to conduct planned counterattacks and can be made up of uncommitted or lightly engaged forces and the reserve.

The reserve is the commander's tool to influence the course of the battle at the critical time and place to exploit opportunities. It is the force that provides flexibility to the commander by allowing him to strike the enemy at the time and place of the commander's choosing. The commander uses his reserve at the decisive moment in the defense and refuses to dissipate it on local emergencies. It is a designated force, as robust and mobile as possible, that exploits success, conducts counterattacks, contains penetrations, and regains the initiative. The less that is known of the enemy or his intention, the greater the proportion of combat power that must be held in reserve. The reserve is usually located in assembly areas or forward operating bases in the main battle area. Once the reserve is committed the commander establishes or reconstitutes a new reserve.

Reserves are organized based on the factors of METT-T. The tactical mobility of mechanized and helicopterborne forces make them well suited for use as the reserve. Mechanized reserve forces are best employed offensively. In suitable terrain, a helicopterborne reserve can react quickly to reinforce the main battle area positions or block penetrations. However, helicopterborne forces often lack the shock effect desired for counterattacks.

Timing is critical to the employment of the reserve. As the area of probable employment of the reserve becomes apparent, the commander alerts his reserve to have it more readily available for action. When he commits his reserve, the commander must make his decision promptly and with an accurate understanding of movement factors and deployment times. If committed too soon or too late, the reserve may not have a decisive effect. The commander may choose to use security forces as part or all of his reserve after completion of their security mission. He must weigh this decision against the possibility that the security forces may suffer a loss of combat power during its security mission.

Rear Area Forces

Rear area forces protect and sustain the force's combat power. They provide for freedom of action and the continuity of logistic and command and control support. Rear area forces facilitate future operations as forces are positioned and support is marshaled to enable the transition to offensive operations.

The security of the rear area is provided by three levels of forces corresponding to the rear area threat level. Local security forces are employed in the rear area to repel or destroy *Level I* threats such as terrorists or saboteurs. These forces are normally organic to the unit, base, or base cluster where they are employed. Response forces are mobile forces, with appropriate fire support designated by the area commander, employed to counter *Level II* threats such as enemy guerrillas or small tactical units operating in the rear area. The tactical combat force is a combat unit, with appropriate combat support and combat service support assets, that is assigned the mission of defeating *Level III* threats such as a large, combined arms capable enemy force. The tactical combat force (TFC) is usually located within or near the rear area where it can rapidly respond to the enemy threat. When facing a threat equipped with heavy armored vehicles the TCF maybe required to be tasked organized with tanks.

4104. Preparing for the Defense.

Deliberate Defense. A deliberate defense is normally organized when out of contact with the enemy or when contact is not imminent and time for organization is available. A deliberate defense normally includes fortifications, strongpoints, extensive use of barriers, and fully integrated fires. The commander normally is free to make a detailed reconnaissance of his sector, select the terrain on which to defend, and decide the best distribution of forces.

Hasty Defense. A defense normally organized while in contact with the enemy or when contact is imminent and time available for the organization is limited. It is characterized

by improvement of the natural defensive strength of the terrain by utilization of emplacements and obstacles. The hasty defense normally allows for only a brief leader's reconnaissance and may entail the immediate engagement by security forces to buy time for the establishment of the defense.

Use of the Reserve in the Defense. The reserve is the commander's tool to influence the course of the battle at the critical time and place to exploit opportunities. It is a designated force, as robust and mobile as possible, that exploits success, conducts counterattacks, contains penetrations and regains the initiative. Its primary purpose is to retain flexibility though offensive action. Reserves are organized based on the factors of METT-T. The tactical mobility of mechanized forces makes them well suited for use as the reserve.

General planning considerations include:

- Enemy's strength and mobility.
- Initial disposition, assembly areas, coordination measures, and routes or axis.
- Coordination with frontline units- key considerations includes frontline unit obstacle plans and passage lanes.
- Communications/signals.
- The tank unit coordinates, reconnoiters, rehearses, and prepares for the priority reserve missions as time allows.

Section 2. Types of Defense

4201. General.

Every defense contains two complementary characteristics; a static or positional element, which anchors the defense to key terrain, and a dynamic or mobile element, which generates combat power through maneuver and concentration of forces. The positional element is characterized by use of battle positions, strongpoints, fortifications and barriers to halt the enemy advance. The mobile element is characterized by the use of offensive action, supplementary positions, planned delaying actions, lateral shifting of forces and commitment of the reserve. Conceptually, this results in two defensive extremes; the position defense and the mobile defense. However, neither type can be used exclusively in practice. Although these descriptions convey the general pattern of each type of defense, any defense will include both positional and mobile elements. Commanders may conduct position and mobile defenses simultaneously to take advantage of the strengths inherent in mechanized organizations. Mechanized forces possess the mobility required to conduct mobile-type defenses or may be tasked to be the reserve given the situation and terrain within their assigned sector.

4202. Position Defense.

The type of defense in which the bulk of the defending force is disposed in selected tactical localities where the decisive battle is to be fought. Principle reliance is placed on the ability of the forces in the defended localities to maintain their positions and to

control the terrain between them. The tank battalion is typically used as the reserve in a positional defense. As a reserve, tank units are normally employed to add depth, to block penetrations, or restore the battle position by counterattack.

The position defense is conducted to deny the enemy access to critical terrain for a specified period of time. The position defense is seldom capable of achieving the outright destruction of the attacking force due to its limited mobility. The attacker may disengage when dealt a tactical setback or take advantage of other opportunities to maintain the initiative. Thus, the position defense relies on other simultaneous or subsequent operations by adjacent or reinforcing forces to achieve decisive results. Circumstances may require or favor the conduct of a position.

4203. Mobile Defense.

The mobile defense is an area or position in which maneuver is used together with fire and terrain to seize initiative from the enemy. The mobile defense requires depth and focuses on the destruction of the enemy by permitting him to advance into a position that exposes him to counterattack by a strong mobile reserve. Tank units will not normally conduct a mobile defense as a separate maneuver element. Usually, they are employed as part of a mechanized force within a MAGTF mobile defense. Mechanized pure units are normally assigned to the main battle area while units task organized with tanks (teams or task forces) are often assigned reserve roles.

The positional defense is normally used to retain key terrain while the mobile defense is used to destroy the enemy force. Clearly, the positional defense weights its forces forward while the mobile defense weights its forces toward its reserve or counterattack force. The position defense normally uses its reserve to reestablish the FEBA following penetration by the enemy. In the mobile defense, the reserve or counterattack force is used to destroy the enemy. Although the mobile defense has inherent risks, it stands a greater chance of inflicting a decisive defeat and complete destruction of the enemy force than does the area defense.

Section 3. Defensive Maneuver

Sectors. Sectors are areas designated by boundaries within which a unit operates and for which it is responsible. Assignment of a defensive sector provides tank units with maximum latitude to accomplish assigned tasks. It is the most common method of defending with a mechanized force and prevents the enemy from concentrating overwhelming firepower on the bulk of the defending force at one time. The strength of this defense comes from its flexibility and focus on the enemy, rather than terrain. This depth must come from the initial positioning of units throughout the sector, and a viable reserve/counterattack force. The extent of the sector is METT-T dependent. Forces deployed in depth must confront the enemy with effective fires from multiple, mutually supporting locations as the enemy tries to maneuver. The sector is organized around many dispersed, small units, which attack the enemy throughout the depth of his formations.

Battle Position (BP). A battle position is a defensive location oriented on the most likely avenue of approach from which a unit may defend. Battle positions should be positioned to achieve depth, surprise, mutual support, and to allow for maneuver. They effectively concentrate combat power into an engagement area, while preventing the enemy from isolating any one part of the unit. Units of platoon to battalion size may be assigned a battle position. The use of on-order battle positions adds flexibility and depth to the defensive plan. Tanks units are normally tasked to provide security outside of a battle position, overwatch a battle position, or serve as a spoiling attack or counterattack force.

Strongpoints. Strongpoints are heavily fortified battle positions, tied to a natural or reinforcing obstacle to create an anchor for the defense or to block a key piece of restricted terrain. A strongpoint typically locates on key or decisive terrain. A commander will also establish a strongpoint when he anticipates that enemy actions will isolate a defending force retaining terrain critical to the defense.

The strongpoint requires significant engineer support. Positions are prepared for all weapons systems, vehicles, Marines, and supplies. Positions are prepared for all-around defense when they anticipate being surrounded. Once isolated, unit movement will be restricted within the confines of the strongpoint position.

Before assigning a strongpoint mission, a commander must ensure that the strongpoint force has sufficient time and resources to construct the position.

Alternate and Supplementary Positions. The alternate position is a position given to a weapon, unit, or individual to be occupied when the primary position becomes untenable or unsuitable for carrying out its task. Alternate positions provide additional lines of sight into the same engagement area or sector of fire and are sited to fulfill the original task. Alternate and supplementary positions should be designated and prepared as time permits. They increase the survivability of a weapons system by enabling it to engage the enemy from multiple positions. Supplementary positions provide the means to accomplish a task that cannot be accomplished from the primary or alternate positions. They allow a unit or weapons system to engage enemy forces approaching from another direction such as the rear or flank.

Planning Considerations:

The following are common considerations in defensive plans:

- Security plan
- Movement into the defense (deliberate defense only)
- Location/grids for tactical and fire control measures (e.g. boundary, sectors of fire, target reference points, engagement area, passage lanes, and counterattack routes, on order or event oriented fire control
- Priority of Engagement (e.g. target precedence)
- Methods of Engagement-(e.g. HAW-MAW-LAW or Massed Surprise Fires)

- Engagement and disengagement criteria and instructions (e.g. maximum engagement line, trigger line, disengagement line
- Priority of work in improving positions e.g. security, positioning of weapon systems, fields of fire, hull down, turret down, and hide positions.
- Obstacle plan integrated with fire plans and scheme of maneuver
- Fire plan integrated direct and indirect fire plans with scheme of maneuver and obstacle plans
- Reporting requirements
- MOPP levels
- Stand- to beginning and end
- Movement within position
- Timeline

Chapter 5

Other Tactical Operations

Section 1 Security Operations

5101. General

Security operations are designed to provide reaction time, maneuver space, and protection *for* the force as a whole. Characteristics include: aggressive reconnaissance to reduce unknowns, the ability to gain and maintain contact with the enemy, and the ability to provide early and accurate warning to the main body. The primary orientation of the security force is the protection of the main body as opposed to a terrain or enemy objective. Security operations include the forms screen, guard, cover, and area security.

At the tactical level security forces protect the command against surprise attack and observation by hostile air and ground forces. They maintain freedom of maneuver for the command by providing reaction time and maneuver space. Forces conducting security missions orient their movements on the force or facility they are assigned to secure.

Security forces may operate at varying distances from the main body and to any flank based on conditions of METT-T. They employ the minimum combat power necessary to cover extended frontages in order to provide the commander early warning. This allows the commander to retain the bulk of his combat power to be committed at the decisive place and time.

Security forces and the main body force interact through the exchange of information. Security forces report enemy activities to the main body commander and to other affected security forces. The main body commander ensures that the security force commander has access to all pertinent intelligence and combat information obtained by the main body to supplement security force's capabilities. Through the continuous exchange of information both the security force and main body commander have the time to choose a course of action suitable to the situation.

As in reconnaissance operations, aviation assets working in concert with ground security forces create a synergism that facilitates rapid mission execution. RSTA assets are focused on NAIs and TAIs to permit, limited security forces to concentrate on likely avenues of approach. and restrictive terrain

Successful operations depend on the proper application of the following fundamentals.

- *Provide Early Warning and Reaction Time.* First and foremost, the security force provides early warning by detecting the enemy force quickly and alerting the main body. Then, the security force provides reaction time by taking actions within its capability and mission constraints to delay the enemy's advance.

- *Orient on the Force to Secure.* The security force orients all its actions to protect and provide early warning to the force that it is to secure. It aggressively seeks out the enemy and occupies terrain only to enhance its ability to protect the main body.

- *Perform Continuous Reconnaissance.* The security force conducts its operations by aggressively seeking out the enemy and reconnoitering key terrain. Security forces continuously employ a combination of observation posts (OPs), mounted/dismounted patrols, sensors, and defensive positions.

- *Maintain Enemy Contact.* The security force commander arrays his available assets to ensure continuous contact with the enemy. At the same time, the security force must not become decisively engaged and fixed in place. It must retain its flexibility to stay in front of the enemy and continue to report. Contact with the enemy is maintained both physically and with technical assets.

Security Missions.

The forms of security are screen, guard, and cover. Each provides an increased measure of security and reaction time to the force. A screen allocates minimal combat power to cover an extended flank, yet only provides early warning. A guard contains sufficient combat power to defeat or contain lead elements of an enemy force. A covering force allocates considerable combat power to engage an enemy force at a considerable distance from the main force, providing the maximum early warning and reaction time. However, the more combat power allocated to the security force the less that will be available for the main effort.

5102. Covering Force.

A covering force is: 1. A force operating apart from the main force for the purpose of intercepting, engaging, delaying, disorganizing, and deceiving the enemy before he can attack the force covered. 2. Any body or detachment of troops that provides security for a larger force by observation, reconnaissance, attack, or defense, or by any combination of these methods. (JP 1-02) Typically, a covering force operates forward of the main force; however, it may operate to the rear or either flank. Although a covering force aggressively develops the situation independent of the main force, its fundamental orientation remains on preventing the surprise and untimely engagement of the main force. A covering force differs from a screening or guarding force in that it is normally a self-sufficient combined arms force equipped with enough combat power to develop the situation at a considerable distance away from the main force. While the covering force provides the most security to the main force, it generally requires a considerable amount of dedicated logistical support. A commander will assign a covering force mission whenever the enemy possesses a strong mobile force, capable of rapid and decisive action. Additionally, the commander must have sufficient assets to resource both the covering force and the main force.

When the commander lacks the ability to resource both a covering force and the main force, he may opt to assign a less robust security mission. The frontage of the covering force areas will normally be the same size as the zone or sector of the main force it is protecting. Its depth will be METT-T dependent. When the commander perceives a

significant threat to the rear of his formation, and resources permit, he may assign a rear cover mission. A rear covering force normally protects a force moving away form the enemy. The covering force deploys behind the forward maneuver units of the main force, accepts battle hand over and passes the main force through it, and then defends or delays. Alternatively, the covering force may conduct a relief in place as part of a deception plan or to take advantage of the best defensive terrain. The covering force establishes passage points and assists the rearward passage of the main force, as necessary. From that point on, the mission is conducted the same as any other defensive covering force operation. As the main force moves, the covering force displaces to subsequent phase lines in depth.

Types of Cover:

Offensive Cover. During offensive operations, a covering force may operate to the front or flanks of the main body. An offensive covering force may accomplish the following:

- Perform reconnaissance along the main body's axis of advance.
- Deny the enemy information about the size, strength, composition and objective of the main body.
- Destroy or repel enemy reconnaissance and security zone forces.
- Penetrate enemy defense, develop the situation to determine enemy strengths, weaknesses and dispositions.
- Defeat, repel, or fix enemy forces as directed by the higher commander.
- Exploit opportunities initial main body force are committed.

The covering force should clear the zone of enemy security and small combat elements and penetrate the leading elements of the enemy's defensive positions. When it can advance no further, it prepares for the main body to conduct a forward passage of lines. It continues to perform close reconnaissance of enemy positions to locate gaps or vulnerable flanks. It reports enemy dispositions immediately to the commander of the main force so that he can exploit enemy weakness. The covering force may guide the entire main force or some of it's elements as they attack through or around the covering force. If the covering force has done its job well, the commander of the main force will be able to attack the enemy's weak point at the time of his choosing with previously uncommitted forces.

Defensive cover Operations. A defensive covering force operates to the front, flanks, or rear of a main force deploying to defend. The primary mission of a defensive covering force is to strip away enemy reconnaissance, force the enemy to reveal his main effort, disrupt his attack, and deny him of the initiative.

Defensive covering forces:

- Maintain continuous surveillance of high-speed avenues of approach.
- Destroy or repel enemy reconnaissance and security forces.
- Determine the size, strength, composition, and direction of the enemy's main effort.
- Defeat the lead enemy echelons within its capability.

- Force the enemy to repeatedly deploy to fight through the covering force and commit the reserve or follow-on forces to sustain momentum.
- Create ambiguity as to location and disposition of the main force.

The covering force screens, defends, delays, and counterattacks to execute a defensive cover. If the covering force area is not yet occupied, the covering force may have to reconnoiter and clear the area or route. As in offensive operations, aerial reconnaissance is critical to extend the battlespace. It can screen less threatened sectors and rapidly reinforce fires when other elements of the covering force are heavily engaged. During defensive operations the commander of the main force designates the forward and rear boundaries of the security force with phase lines. The lateral boundaries of the security area are normally extensions of he main body boundaries. The rear boundary of the covering force area is the forward edge of the battle area (FEBA).

5103. Guard Force.

A guard force is tasked to protect the main force by preventing the enemy from being able to engage main forces with direct fire weapons. The guard force accomplishes its task by reconnoitering, attacking, defending, and delaying enemy forces in order to provide time for the main force to counter enemy actions. A guard force is normally task-organized from the elements comprising the main force; therefore, it operates within supporting range of the main body.

A guard differs from a screening force in that it contains greater combat power and is employed to engage enemy forces within its capability as opposed to a screen that only provides early warning and destroys enemy reconnaissance.

The commander of the main force assigns a guard mission to subordinate units when there are little or no other security forces between the main force and probable enemy forces and he needs both protection and early warning. He may use a guard to the front of his main forces (advance guard), to the rear (rear guard) especially during retrograde operations or to the flank (flank guard) when there is a threat of significant enemy contact. Lastly, a screening mission may transition to a guard mission upon the approach of a sizable enemy force.

The commander may designate a tank unit as a guard force for protection from enemy ground observation, direct fire, and surprise attack for a given period of time. A guard force allows the commander to extend the defense in time and space to prevent interruption of the organization of the main battle area. Observation of the enemy and reporting of information by the guard force is an inherent task of the guard force, but secondary to its primary function of protecting the main force.

Types of Guard. There are three types of guard: the advance guard, flank guard, and rear guard.

- *Advance Guard.* The advance guard is the lead element of an advancing formation or column. The mission of the advance guard is to clear the axis or zone of enemy elements and allow the unimpeded movement of the main force. In some cases, an advance guard may operate behind the security force of a higher echelon. In these situations, the higher echelon security force will develop the situation initially. The advance guard may then reinforce the higher echelon security force or expand the area of contact with the enemy force.

- *Flank Guard.* As in the screen, the commander designates the general trace of the flank guard positions. The commander of the flank guard considers the axis taken by the main force, the enemy's capabilities, and avenues of approach in order to determine his initial dispositions. Sectors should be sufficiently deep to provide early warning and reaction time, yet remain within supporting range of the main force.

The flank guard has the responsibility to clear the area between the main force and the flank guard's positions. Typically, the flank guard will operate on a smaller frontage than a screen.

Should an enemy attack appear imminent from the flank, the flank guard will normally occupy preplanned or hasty defensive positions. Should the enemy prove too strong for the flank guard, it will normally delay in sector. Flank guard operations can be employed while the main force is stationary or moving.

Stationary Flank Guard. A flank guard for a stationary force reconnoiters out to its initial security positions. This allows the flank guard to clear the zone and become familiar with the terrain that may subsequently be defended. Upon reaching its initial positions, the flank guard establishes a defense. The commander plans the defense or delay in depth from the initial positions
The following critical tasks apply during this mission.

- Maintain continuous surveillance of enemy avenues of approach.
- Maintain contact with the main body.
- Provide early warning and defeat, repel, or fix enemy ground forces, within capabilities, before they can engage the main body with direct fire.

Moving Flank Guard. The techniques for movement and establishing the flank guard force are similar to techniques used during flank screening operations. Whichever technique is used, the flank guard must remain in contact with the leading elements of the main body.

Methods of Flank Guard Movement. As in any guard mission, the greater the level of security, the slower the guard's movement. Based on the speed of the main body, the likelihood of the enemy attack, and the distance to the objective, the guard force adopts one or a combination of the following three movement techniques:

Successive bounds. This is used when the enemy action against the flank is light and the movement of the main force is expected to include frequent short halts.

Alternate bounds. Used when strong enemy action is anticipated against the flank, this technique requires slow movement by the main force. Alternate bounds are the most secure, yet the slowest technique.

Continuous movement. This is used when enemy activity on the flank is unlikely and the main force is moving with all possible speed. Traveling in column with an on-order defensive mission is the quickest but least secure technique.

- *Rear Guard.* The rear guard protects the exposed rear of the main force during offensive operations or retrograde operations. Rear guards are normally established during a withdrawal, retirement, or when conducting deep maneuver forward of the FLOT when there is significant enemy threat to the rear of the main force.

Establishing a rear guard during a retrograde operation may be done in two ways. The rear guard may relieve other units in place along the FLOT as they move to the rear. Alternatively, the rear guard may establish a position in depth behind the main force and pass those forces through.

The rear guard employs both sector and battle positions while executing its mission. The commander of the main force prescribes the distance that the rear guard must maintain between itself and the main force. The rear guard for a moving force displaces to successive battle positions in-depth as the main force moves. The nature of enemy contact determines the method of displacement.

5104. Screen Force.

A screening force primarily provides early warning. It observes, identifies, and reports information. It generally fights only in self-defense, but does engage enemy reconnaissance elements within its capabilities. Commanders generally establish screens on an extended flank, to the rear, or to the front of a stationary force. A screen is often executed as a series of OPs with patrolling between them.

The GCE commander may establish a screening force utilizing tank units to gain and maintain contact with the enemy, to observe enemy activity, to identify the enemy main effort, and to report information. In most situations, the minimum-security force normally organized by the GCE is a screening force. Normally, the screening force only fights in self-defense, but may be tasked to:

- Repel enemy reconnaissance units as part of the GCEs counter-reconnaissance effort.
- Prevent enemy artillery form acquiring terrain that enables front-line unit to be engaged.
- Provide early warning.
- Attack the enemy with supporting arms.

A screen is not conducted forward of a moving force. The security element forward of a moving force must conduct either a guard or cover. A screen is essentially an outpost line, consisting of OPs, which may reposition laterally along the outpost line (a designated phase line). However, these units conduct a form of reconnaissance when advancing a screen line.

The senior commander determines the general location at which he wants the screening force to operate. Screens for a moving force must remain physically tied into the main force. The senior commander may or may not delineate a rear boundary for the screening force. If it is designated, it should be coordinated as a phase line outside the main force's boundaries.

The screening force commander conducts a detailed analysis of the terrain along the general trace line and establishes his initial screen line. The initial screen line depicts where the screening force will initially be located. It should be on or very near the general trace line, but more importantly it is on terrain that allows good observation. The initial screen line must be within supporting range of the main force, yet far enough away to provide sufficient early warning. Normally, there is little or no depth along the screen, except along high-speed avenues of approach. This depth allows commanders to maintain continuous contact while OPs along the initial screen line are displacing.

The screening force commander controls movement in sector by designating subsequent screen lines. Subsequent screen lines are essentially phase lines. They require reporting when crossing or occupying. Displacement to a subsequent screen line is event driven. The approach of an enemy force, relief of a friendly unit, or movement of the protected force dictate screen movements. Typically, the commander of the main force does not place a time requirement on the duration of the screen. Doing so may force the screening force to accept decisive engagement for which the screening force is not organized.

Types of Screens. A screening force provides security for a main force that is either stationary or moving. The terms "stationary" and "moving" describe the actions of the protected force, not the screening force.

Stationary Screen. A security force conducts a screen to the front, flank and rear of a stationary force in a similar manner. The tasks associated with a stationary screen normally consist of movement to the initial screen line, establishment of the screen, and displacement to subsequent screen lines. Additionally, the screening force commander coordinates battle handover line (BHL) and passage of lines with the main force commander.

Movement to initial screen line. Typically, the screening force commander will reconnoiter forward to the initial screen line. While this technique provides information of tactical value on the enemy and terrain in the sector, it may also be very time consuming. Using air reconnaissance forward of the ground units will increase the speed and security of the movement. If time is critical, the screening force may conduct a

tactical road march or approach march to its initial screen line. While it is faster, this technique does not assess the enemy or terrain situation between the screening force and the main force.

Establishment of the screen. OPs are established with overlapping fields of observation; and if possible, a small force retained as reserve. Normally, OPs are established in depth on high-speed avenues of approach. Routes between the initial and subsequent screen lines should be planned to facilitate rapid occupation of the subsequent screen line. The element held in reserve is deployed in depth and positioned to react to contingencies that develop during the conduct of the screen.

Displacement to subsequent screen lines. As discussed above displacement to subsequent screen lines is normally event driven. The FEBA is the rear boundary for a forward screen. A phase line is designated as the BHL as the rearward boundary for a flank or rear screen. Battle handover and passage of lines are discussed later in Chapter 5, *Other Tactical Operations.*

Moving Screen. A screen is maintained along the flanks and/or the rear of the main force. Responsibilities for a moving flank screen begin at the front of the lead combat element in the main force and end at the rear of the protected force. The movement of the screen is keyed to the movement of the main force. There are three techniques of performing this type of screen:

Screening force crosses the line of departure (LD) separate from the main force. The screening force may cross the LD separate from the main force, conduct a tactical road march, approach march, or tactical movement parallel to the main force, and drop off elements along the screen line. This technique is appropriate when the main force is moving quickly or the LD is uncontested. This is the fastest but least secure technique.

Screening force's lead element reconnoiters the zone. The screening force may cross the LD separate from main force with lead elements conducting a form of reconnaissance. Follow-on elements occupy screen line positions. This technique is appropriate when the main force is moving slow or the LD is uncontested. This technique is slower than the previous technique, but provides better security.

Screening force crosses LD with the main force. The screen force may cross the LD with the main force and reconnoiter out to the screen line. This technique is appropriate when the main force is moving slowly, the LD is also the line of contact (LC), or the enemy situation is vague. This technique provides security for the screen force and the main force, but is the most time consuming.

A moving screen may be placed to the rear of the main force conducting an attack or a retrograde operation. In this situation the screen line displaces to subsequent screen line based on movements of the main body or enemy force.

Movement along the screen line is determined by the speed of the main force, the distance to the objective, and the enemy situation. There are four basic methods of controlling movement along the screen line.

- Alternate bound by individual OPs from rear to front.
- Alternate bound by subordinate units from rear to front.
- Successive bound by units along the screen line.
- Continuous march along the route of advance.

Screening Operations during Limited Visibility. Limited visibility caused by weather conditions often affects both the screening force's ground and air observation capabilities. While technical intelligence assets can be employed to offset limited visibility the screening force should adjust its techniques and procedures. For example, OPs should be adjusted; night and thermal observation devices employed; electronic surveillance devices, trip flares, and OPs placed along dismounted avenues of approach. Depth in the screen can facilitate acquisition of enemy forces that may elude forward elements. Patrols are closely coordinated to prevent misidentification and engagement by friendly elements. Rigorous sound and light discipline at night prevents compromise and potential bypass of OPs by enemy reconnaissance forces. Additional OPs can be established as listening posts (LP) to take advantage of the extended distance sound travels at night. Indirect illumination is planned and used as necessary.

Integration of Intelligence Systems. In addition to aviation, technical assets can greatly expand the area covered by screening forces. Remote sensors, UAVs, and downlinks from theater and national assets can all greatly expand the area covered by a screening force, thereby providing the main force and the screening force commander time to adjust to situations if necessary.

Section 2. Retrograde Operations

5201. General.

Retrograde operations are organized movements to the rear or away from the enemy. The enemy may force these operations or a commander may execute them voluntarily. Retrograde operations are transitional operations. They are not considered in isolation. They are conducted before or after either defensive or offensive operations. They are part of a larger scheme of maneuver to regain the initiative and defeat the enemy. Commanders execute retrogrades to:

- Wear down the enemy, trading space for time in situations that do not favor a defense.
- Disengage from combat.
- Avoid combat under undesirable conditions such as continuing an operation that no longer promises success.
- Draw the enemy into an unfavorable situation.
- Place forces in a more favorable position.

- Allow the use of a portion or all of the force elsewhere.
- To conform to the movement of other forces.
- Upon achieving the purpose of the ongoing operation.

The forms of retrograde include delay, withdrawal, and retirement operations.

5202. Delay.

An operation in which a force under pressure trades space for time by slowing down the enemy's momentum and inflicting maximum damage on the enemy without, in principle, becoming decisively engaged. In the delay, the destruction of the enemy force is secondary to slowing his advance to gain time. Mechanized units are ideally suited for delay operations because of their long-range weapons and mobility.

Delays are conducted:
- When the force's strength is insufficient to defend or attack
- To reduce the enemy's offensive capability by inflicting casualties
- To gain time by forcing the enemy to deploy
- To determine the strength and location of the enemy's main effort
- When the enemy intent is not clear and the commander desires intelligence
- To protect and provide early warning for the main battle area forces
- To allow time to reestablish the defense.

The delay succeeds by forcing the enemy to repeatedly concentrate its forces to fight through delay positions. Delaying forces will displace once the enemy concentrates sufficient resources to decisively engage and defeat friendly forces.
Commanders generally decentralize delay execution to battalion and lower levels. The commander establishes the accepted risk through his commander's intent statement and the establishment of disengagement criteria. He monitors subordinate unit status, and shifts resources to met the enemy's main attack. The commander seizes those fleeting opportunities to decisively counterattack the enemy with his reserve at every opportunity. Typically, the reserve will be committed to assist a unit's disengagement and regain the ability to maneuver or to prevent the enemy from exploiting advantages.

Techniques of Delay Operations. There are two main techniques of delay operations. These are delay from alternate positions and delay from successive positions. In the execution of both techniques, it is crucial that the delay force maintains contact with the enemy between delay positions.

Alternate Positions. Delay from alternate positions involves two or more units in a single sector, occupying delaying positions in depth. As the first unit engages the enemy, the second occupies the next position in depth and prepares to assume responsibility for the operation. The first force disengages and passes around the second. It then prepares to reengage the enemy from a position in greater depth, while the second force takes up the fight.

Delay from alternate positions is useful on particularly dangerous avenues of approach. This method offers greater security than delay from successive positions. However, it requires more forces and continuous maneuver coordination. Additionally, there is the risk of losing contact with the enemy between delay positions.

Successive Positions. Delaying from successive positions occurs when the sector is so wide that available forces cannot occupy more than a single tier of positions. Delaying units are positioned forward in a single echelon. Maneuver units delay continuously on and between positions throughout their sectors. As a result this technique is simpler to coordinate than the delay from alternate positions.

Delaying from successive positions is easier to penetrate than a delay from alternate positions because the force has less depth and less time to occupy subsequent positions. To facilitate the rapid occupation of positions, units will normally recon subsequent positions before occupation and post guides on one or two subsequent positions.

In restrictive terrain, where infantry conducts the primary action, successive positions may be close together). In more open terrain, delay positions are often further apart. In the selection of positions, commanders consider the location of natural and artificial obstacles, particularly when the enemy possesses sufficient armored combat systems.

Organization of Forces. As in defensive operations, commanders assign their delaying force a sector with flank and rear boundaries; the commander selects delay positions on key terrain astride likely enemy avenues of approach. Delay positions are normally battle positions that commanders plan throughout the depth of the delay sector. Phase lines are designated along identifiable terrain features to control the displacement of friendly forces. Selected phase lines may be designated as delay lines. Delay lines require the delaying force prevent the enemy from crossing the line until a specified time or the occurrence of an event. Time and resources will normally constrain units to preparing only the initial and a few subsequent positions.

Coordination is critical during a delay. To ensure coordination, commanders designate contact points at the boundaries along delay lines to ensure units coordinate each series of delay positions.

In the delay, R&S assets are focused on named and target areas of interest. It is essential that the delaying commander identify the enemy's advance early enough to adjust his scheme of maneuver and concentrate sufficient combat power to effectively delay the enemy.

Commanders normally retain a reserve to contain enemy penetrations between delay positions, reinforce fires into an engagement area, or help a unit disengaging from the enemy. The size of the reserve depends on the situation and forces available.

Execution of the Delay. A mechanized force will normally be assigned sectors in which to delay and the initial delay positions. Phase lines may be employed to control

the timing of the delay. The tank should be employed as the primary weapon to engage enemy tanks. Their high rate of fire, armor protection against enemy artillery, and mobility make tanks best suited for this mission. Tanks may also be retained in a reserve to extricate forces, which have been decisively engaged, or to conduct counterattacks.

Rear Operations. Rear operations in a delay are similar to rear operations in the defense. However, the echeloning of combat service support organizations required to maintain continuous support during the delay, coupled with the additional dispersion inherent to the delay, complicates the conduct of these operations. Critical to the success of the delay is the ability of the rear to provide Class III and V to the force.

Concluding the Delay. A delay operation terminates when one of the following three conditions exist:

The advancing enemy force reaches a culmination point. In this case the delaying force has three choices. They may maintain contact in current positions, they may withdraw, or the delaying force may transition to the offense.

The delaying force passes through another force. Typically, the delaying force will conduct a rearward passage of lines at the battle handover line (BHL) and move into assembly areas. That passage of lines may be under enemy pressure. Smooth transfer of control requires the commander involved coordinate passage points, establish recognition signals, work out supporting fires, and agree on routes through the defended position. As in the defense, commanders locate the battle handover line in front of the forward edge of the battle area. It is preferable to pass delaying units to the rear in sectors not under direct attack.
The delaying force reaches defensible terrain and transitions to the defense.

5203. Withdrawal.

A planned operation in which a force in contact disengages from an enemy force. A withdrawal is a type of retrograde where a force in contact plans to disengage from the enemy and move in a direction away from the enemy. The relative mobility of the tank battalion make it ideally suited to perform the rear guard duties for a withdrawing MAGTF. Withdraws may be executed at any time and during any type of operation. Units undertake a withdrawal for the following reasons:

- If the unit achieves its objective and there is no further requirement to maintain contact.
- To avoid baffle under unfavorable tactical conditions, for example, if a force cannot achieve the object of its operations and defeat threatens the force.
- To draw the enemy into an unfavorable position.
- To extend the enemy's lines of communication.
- To conform to the movements of adjacent friendly forces.
- As an economy of force measure to allow the use of the force or parts of the force elsewhere.

- As a prelude to a retirement operation.
- For logistical reasons.

Withdrawals are inherently dangerous, since they involve moving units to the rear away from what is usually a stronger enemy force. An aggressive enemy will attempt to prevent or delay a unit's withdrawal. In all withdrawals, the commander should attempt to conceal from the enemy his intention to withdraw. Whatever the case, a withdrawal always begins under the threat of enemy interference. Since the force is the most vulnerable if the enemy attacks, commander's plan for a withdrawal under pressure. Commanders then develop contingencies for a withdrawal without pressure. In both cases, the commander's primary concerns will be to:

- Break contact with the enemy.
- Displace the main body rapidly, free of enemy interference.
- Safeguard the withdrawal routes.
- Retain sufficient combat, combat support, and combat service support capabilities throughout the operation.

Factors Impacting the Conduct of a Withdrawal. A unit will conduct one of four types of withdrawal operations. Each type requires a slightly different blending of withdrawal fundamentals. There are four factors that establish the type of withdrawal taking place and impact on how a unit conducts a withdrawal.

Withdrawal Under Enemy Pressure. A withdrawal under enemy pressure depends on maneuver and firepower to break contact as the enemy attacks the withdrawing unit. The goal is to preserve the unit and prevent the enemy from forcing the withdrawal into a disorganized retreat. The planning and techniques for a withdrawal under enemy pressure are very similar to the techniques for a delay. The difference is that, in a delay, to maintain contact with the enemy and, in a withdrawal under pressure, you conduct fire and movement to disengage from the enemy. The withdrawal begins with the withdrawing unit (not the security force) engaging the enemy along all avenues of approach. The withdrawing unit disengages, conducts a rearward passage thorough the security force, assembles, and moves to the next position. The security force assumes the fight from the forward elements. This includes delaying the enemy advance while bulk of the withdrawing unit conducts a movement to the rear. On order or when predetermined criteria are met, the security force disengages itself and moves to the rear as a rearguard. The rearguard may be required to maintain contact with the enemy throughout the operation.

Withdrawal Not Under Enemy Pressure. If the unit is not under actual attack, the withdrawal is not under pressure. A withdrawal not under pressure depends on deception and speed of execution. The enemy must not be aware that the withdrawal is taking place. Deception and OPSEC are essential to the success of the operation. Several things can be done to deceive the enemy; leave a detachment left in contact (DLIC) to make the enemy believe you are still in position, or use limited visibility to cover the withdrawal. In an assisted withdrawal, a regiment would provide the security force for the battalion.

If the battalion must form its own DLIC, it is normally organized from elements of each company in contact with the enemy. The DLIC would normally be commanded by the battalion executive officer or operations officer. The company DLICs would normally be commanded by the company executive officers. Another option is for the battalion commander to leave a single company as the DLIC. If enemy contact is just in one company's sector, this approach is preferred. The DLIC should be able to engage the enemy on all avenues of approach with both direct and indirect fire. The main body and combat support elements displace using stealth along designated routes to a new assembly area. Reserve forces may be positioned along the withdrawal routes and be given on-order missions to defend, delay, or counterattack during the withdrawal.

Assisted Withdrawal. In an assisted withdrawal, the assisting force may provide:

- The security force through which the withdrawing force will pass.
- Reconnaissance of withdrawal routes.
- Forces to secure choke points or key terrain along withdrawal routes.
- Elements to assist in movement control such as the establishment of traffic control points.
- Required combat, combat support and combat service support. This can involve conducting a counterattack to assist the withdrawing unit disengage from the enemy.

Unassisted Withdrawal. In an unassisted withdrawal, the withdrawing unit must do everything by itself. It must establish its own security force, recon and secure routes to the rear, and disengage from the enemy.

A withdrawal normally occurs in three overlapping phases. The preparatory phase occurs when all nonessential personnel including combat trains are relocated to the rear. Next the disengagement phase has units begin sequenced movement to the rear. When contact is broken, a tactical march is conducted to an assembly area. During the security phase a detachment left in contact assists disengagement of other element, it assumes responsibility for the battalion sector, deceives the enemy, and protects the movement of disengaging elements with maneuver and fires. This phase is completed when the detachment left in contact breaks contact with the enemy and completes its movement to the rear.

Organization of Forces. Units avoid changing their task organization, unless they have sufficient planning time. However, circumstances may dictate rapid task organization changes immediately before the withdrawal. A commander typically organizes his force into security forces, main body, and a reserve.

Security Forces. The typical threat to a withdrawing force is a pursuing enemy. The rear guard normally contains the preponderance of force devoted to the security mission. When the enemy can infiltrate or insert forces ahead of the withdrawing force, the commander may also establish an advance guard to clear the route or sector. He designates flank guard responsibilities. If warranted, the commander may elect to directly control any part of the security force.

If the security force cannot prevent the enemy from closing on the main body, it must either be reinforced by the reserve, or the overall commander must commit some or all of the main body to restore the situation. In this event, the withdrawal resumes at the earliest possible time.

The greater the stand-off advantage that the security force has, the easier it will be for the security force to successfully cover the main body's withdrawal. The security force maintains contact with the enemy until ordered to disengage or until another force takes over this task.

When a security zone exists between the two main opposing forces, the existing security forces can transition on order to a rear guard. It then conducts delay operations until ordered to disengage and break contact with the enemy.

Sometimes the withdrawing force is in close contact with an enemy and a security zone does not exist. Withdrawals under these conditions require different techniques by security forces.

A technique often used in these situations is the detachment left in contact. This provides the means to sequentially break contact with the enemy. Frontline units leave detachments in contact to secure their movement to the rear. There are two ways of providing the detachment left in contact. These are:

- Each major subordinate element of the withdrawing force leaves a sub element in place, for example, for a regimental- sized task force withdrawal; each battalion-sized task force might leave a company team in contact.
- One major subordinate command of the withdrawing force stays behind, for example, for a brigade withdrawal, one battalion task force may assume the mission of a detachment left in contact. It expands to cover the sector.

These detachments left in contact attempt to deceive the enemy by giving the impression that the original defending unit continues to hold the position in strength. The detachments left in contact simulate, as nearly as possible, continued presence of the main body until it is too late for the enemy to react. They may do this by sustaining operations and other activities such as electronic transmissions, or by attacking. This force must have specific instructions about what to do when the enemy attacks, and when and under what circumstances to withdraw. If required, these detachments receive additional recovery, evacuation, and transportation assets for use after disengagement to speed up their rearward movement.

Typically, subordinate elements left in contact will fall under a senior DLIC commander. The number of intermediate headquarters established depends on METT-T.

Often when a detachment is left in contact, additional security forces set up behind the existing main defensive positions to assist the withdrawal process. These additional

forces can be part of the withdrawing unit or an assisting unit may provide them. The detachment left in contact can then delay back on these additional security forces and join them. Alternatively the detachment delays back to the additional security force, conducts battle hand-over, and conducts a rearward passage of lines. In either case, the security force then becomes the rear guard.

Main Body Forces. On order, the main body moves rapidly on multiple routes to reconnoitered positions (having previously dispatched quartering parties). It may occupy a series of intermediate positions before completing the withdrawal. Usually combat service support and combat support units (with their convoy escorts) precede combat units in the withdrawal movement formation. If the rear guard and/or covering force experiences too much difficulty in delaying the enemy, the commander may need to commit additional forces from the main body to assist their delay effort. The main body itself delays or defends if the security force fails to slow the enemy.

If the enemy blocks movement to the rear, the commander shifts to alternate routes to bypass the interdicted area. Alternatively, he attacks through the enemy.

Reserve. Commanders will generally find a reserve difficult to resource because of the need to commit forces to security tasks. When the complete formation withdraws under pressure, the task of the reserve may be to take limited offensive action, such as spoiling attacks, to disorganize, disrupt, and delay the enemy. It can counter penetrations between delay positions, reinforce threatened areas, and protect withdrawal routes. Reserves may also extricate encircled or heavily engaged forces.

5204. Retirement.

A retirement is a retrograde operation in which a force, out of contact with the enemy, moves away from the enemy (usually to the rear). Retiring units organize for combat, but do not anticipate interference by enemy ground forces. Typically, another unit's security forces cover the movement of one formation as it conducts a retirement. Mobile enemy forces, unconventional forces, air strikes, air assaults, or long-range fires may attempt to interdict the retiring unit. Commanders plan for such enemy actions.

A unit conducts a retirement to:

- Extend the distance from the enemy.
- Reduce the support distance from other friendly forces.
- Secure more favorable terrain.
- Conform to the dispositions of the larger command
- Allow its employment in another area.

When a withdrawal from action precedes a retirement, the actual retirement begins upon completion of the
organization of march formations. (While a force withdrawing without enemy pressure can also use march columns, the difference is the probability of enemy interference.)

Any retirement terrain objective should support the unit's new mission and the purpose of the retirement. A subordinate factor in the selection of a retirement terrain objective, and the routes the force takes to that objective, is its capability to support defensive actions should combat occur during the retirement.

The initial action is to move logistical and administrative units and supplies to the rear. At the designated time, troops execute a withdrawal from action, move into assembly areas (if necessary), and form into march formation. Then the force is prepared to initiate the retirement. During the initial phase the force retires in multiple small columns. As the distance from the enemy increases, smaller columns consolidate into larger ones. Road nets and the potential for hostile interference influence the time and manner in which this occurs.

Organization of Forces. In a retirement, leaders will normally designate security elements and the main body. The formation and number of columns employed during a retirement depend upon the number of available routes and potential enemy interference. Commanders typically will want to simultaneously move major forces to the rear. However, a limited road net or flank threat may require echelonment of the movement in terms of time and ground locations.

The threat of enemy forces, the prevention of surprise, and march route clearance usually requires the column to have an advance guard, augmented with engineers.

The commander designates flank security responsibilities to guard against potential enemy interference against the retiring force and a surprise flanking attack against the retirement's extended columns. Flank guard responsibilities may be designated to subordinate march units. Flank guards must be mobile. Light armor reconnaissance, mechanized infantry, armor, artillery, and engineer forces usually form part of the flank and rear guards.

Terrain and the enemy threat will dictate if the retiring force establishes a single rear guard or if each column forms a separate rear guard. The rear guard is normally the principal security element of each retiring column. It protects the column from surprise, harassment and attack by any pursuing enemy force. Its size and composition depend upon the strength and imminence of the enemy threat. The rear guard generally remains in march columns unless there is a potential for enemy interference. Should the enemy establish contact, the rear guard conducts a delay.

The main body organizes in a manner inverse to that for an approach march. The movement of combat service support and combat support units should precede the movement of combat forces. When necessary, elements of the main body can reinforce the rear guard or any other security element. Fire support and attack helicopter elements of the main body are usually the first elements tasked for this mission; this is because they can most rapidly respond. If the retiring formation can resource a reserve, it performs the same functions as discussed in the withdrawal.

Section 3. Reconnaissance Operations

Reconnaissance is continuous and intrinsic to all Marine operations. Reconnaissance is a directed effort to collect information about the enemy and the friendly commander's area of operations. Reconnaissance information includes information relating to the activities and resources of an enemy, or about the meteorological, hydrographic, or geographic characteristics of the particular area of operation. Reconnaissance is a focused collection effort, accomplished by observation or mechanical detection method. The tank battalion can utilize its Scout and TOW platoons to conduct reconnaissance operations. For a more detailed discussion on the capabilities of the Scout and TOW platoons refer to Annex F.

Commanders draw conclusions concerning the enemy and enemy actions from accurate and timely information. It is from these conclusions that commander's make their plans and commit their marines into battle. And it is through reconnaissance that they obtain this information.

Reconnaissance prior to unit actions, such as movements and occupation of assembly areas, is critical to protecting a commander's forces. Doing so preserves their combat power for decisive battle and engagements. Reconnaissance identifies terrain, enemy and friendly obstacles to movement and the commander's plan. This allows commanders to maneuver the bulk of his forces freely and rapidly. It also allows commanders to keep forces free from contact as long as possible and to concentrate them for the decisive engagement.

Finally, commanders modify their plan by shifting resources and priorities or continue with the plan based upon their overall view of the battlefield. Reconnaissance information contributes significantly to a commander's view of the battlefield and an understanding of his situation.

Types of Reconnaissance Assets. Reconnaissance can be passive or active and is done with a combination of ground, air, and technical assets. Active methods include mounted and dismounted ground reconnaissance, aerial platforms, or reconnaissance by fire. Passive methods include actions such as map and photographic reconnaissance and surveillance (the systematic observation of a particular location, place, or thing by human or technical means

Ground reconnaissance elements provide vital information to commanders. Ground reconnaissance forces gain and maintain contact with the enemy. They work through gaps and around the flanks and rear of the enemy, ascertaining the strength, movement, composition, and disposition of the enemy's main force, as well as the location of enemy reinforcements. Ground reconnaissance units can assist commanders fit forces into the fight and guide them if required. Ground reconnaissance elements are generally limited in the depth to which they can conduct reconnaissance. However, they can operate under weather conditions that preclude air reconnaissance.

Air reconnaissance complements and extends the zone covered by ground reconnaissance. Successful aerial reconnaissance can obtain information that is useful in giving effective direction to ground reconnaissance units. Under favorable conditions, aviation can furnish early information concerning the enemy's general disposition and movements to a considerable depth. Ground reconnaissance may conduct the detailed recon of critical areas, in all weather. Acting in concert, air and ground reconnaissance creates a synergism that facilitates rapid mission execution.

Technical reconnaissance is accomplished largely by systems. It includes electronic-gathering methods available at various echelons. Theater and national technical reconnaissance systems can downlink to the higher level tactical commanders (Division, Wing or above), thus providing them near-real-time battlefield information. Technical means also include unmanned aerial vehicles and remotely emplaced sensors.

Key to optimizing reconnaissance is cueing. Cueing involves the use of one or more means of reconnaissance (air, ground, or technical) providing information that directs collection by another means. For example, Guardrail common sensor may intercept transmissions of a suspected enemy air defense site. This, in turn, may cue an unmanned aerial vehicle launch to confirm or deny this location. In this example, if detailed or firsthand reconnaissance is required, the commander may choose to dispatch a ground reconnaissance element.

Forms of Reconnaissance. There are five forms of reconnaissance operations: route, zone, area, force-oriented, and reconnaissance in force.

- *Route Reconnaissance.* A route reconnaissance is a reconnaissance effort along a specific line of communications, such as a road, railway, or waterway. It provides new or updated information on route conditions and activities along a specific route.

- *Zone Reconnaissance.* A zone reconnaissance is a directed effort to obtain detailed information within a zone defined by boundaries. A zone reconnaissance provides data concerning all routes, obstacles (to include chemical or radiological contamination), terrain, and enemy forces within the zone of action.

- *Area Reconnaissance.* An area reconnaissance provides detailed information concerning the terrain or enemy activity within a prescribed area, such as a town, ridgeline, woods, or other feature critical to operations. Areas are smaller than zones. (A zone reconnaissance may include several area reconnaissances). At its most basic level, an area reconnaissance could be made of a single point, such as a bridge or an installation.

- *Force Oriented Reconnaissance.* Force-oriented reconnaissance differs significantly from the previous forms of reconnaissance. The objective of force-oriented reconnaissance is to quickly find a specific enemy force and stay with it wherever it moves on the battlefield. Units performing this mission provide timely, accurate, first hand information on the enemy force's disposition and its depth. Units conducting force-oriented reconnaissance may sift through the enemy to reconnoiter in depth. They may also guide attacking friendly forces to the preferred point of attack. In this mission very little time is spent on detailed terrain reconnaissance and terrain-related reports. Additionally, terrain oriented control measures are minimal.

- *Reconnaissance in Force.* Reconnaissance in force (RIF) is a limited purpose form of reconnaissance conducted by a considerable force to obtain information and test enemy dispositions, strengths, and reactions. It is conducted by reconnaissance and general-purpose forces to aggressively develop the situation. The size and strength of the force must be sufficient to cause the enemy to respond in some manner and be able to protect itself. A RIF is conducted when the enemy is known to be operating in-strength within a given area and sufficient intelligence cannot be developed by another means.

Section 4. River Crossing Operations

The purpose of a river crossing, whether in the offensive or in a retrograde operation is to project combat power across a water obstacle to accomplish a mission. River crossings require specific procedures for success because the water obstacle prevents normal ground maneuver.

Inherent within the tank battalion table of organization is four armor vehicle bridge launchers (AVLBs) and their compliment of eight bridges. Typically organized as a bridging platoon within the tank battalion the AVLB enables the tank battalion to traverse 40-foot water obstacles without the assistance of MEF bridging assets. Refer to Appendix A for vehicle characteristics of the AVLB.

There are three basic river crossing types: hasty, deliberate, and retrograde.

- *Hasty River Crossing.* A hasty river crossing is a task conducted as part of a larger operation, typically an attack, with no intentional pause at the water line to prepare. It capitalizes on speed while suppressing the enemy. A hasty crossing is possible with appropriately equipped forces when the threat of enemy is not defending the river line in strength at the crossing and the characteristics of the river do not exceed the capabilities of the engineer systems accompanying the force. A hasty crossing is the preferred option. Characteristics of a hasty river crossing include: speed and surprise, minimum loss of momentum at the river, minimal concentration of forces, and well-understood unit standard operating procedures and detailed prior planning.

The hasty crossing uses all possible organic, existing, or expedient means to get across the obstacle in stride. Clearance of enemy forces from the near bank is not a prerequisite to a hasty river crossing. Air assault and airborne forces can simplify the crossing of a river line by use of vertical envelopment. Most combat systems organic to armor and mechanized infantry units cannot swim. As a result, these units must rely on accompanying engineers for the means to conduct the hasty river crossing. Although success of a hasty crossing is not predicated on the seizure of intact bridges, a rapid advance to the river may allow seizure of bridges before the enemy can destroy them. A force crossing a river should prepare to take maximum advantage of any bridges seized.

- *Deliberate River Crossing.* When a hasty river crossing is not feasible for example, when the enemy and/or terrain situations prevent, a hasty crossing attempt fails, or friendly offensive operations resume at a river line after a pause, the force conducts a deliberate river crossing operation. The deliberate river crossing is an operation in

itself, it requires unique planning, control, and specialized support measures. Detailed planning, deliberate buildup and preparation, deception, and clearance of enemy forces from the near bank characterize this type of crossing. Commanders conduct extensive reconnaissance, full-scale rehearsals, and ensure all necessary logistics preparations.

- *Retrograde River Crossing.* A retrograde crossing is a movement to the rear across a water obstacle while in contact with the enemy. The retrograding force may reestablish its defense

For a more in depth discussion on River Crossing Operations refer to MCWP 3-17.1.

Section 5. Linkup Operations

5501. General.

Linkup is a task conducted to join two forces. Both forces may be moving toward one another, or one may be stationary. Linkup operations may occur in a variety of circumstances. They are most often conducted:

- To join two forces regardless of where they are on the battlefield.
- To join an attacking force with a force inserted into the enemy's rear, for example, a helicopterborne force or an infiltration force.
- To complete the encirclement of an enemy force.
- To assist the breakout or come to the relief of an encircled friendly force.

The headquarters ordering the linkup establishes the command relationship between forces and the responsibilities of each. It should also establish control measures, such as contact points and boundaries between converging forces, restrictive fire lines, and other measures to control maneuver and fires. Such control measures may be adjusted during the operation to provide for freedom of action as well as positive control.

5502. Conduct of a Linkup

A linkup is an operation wherein two friendly forces join together in a hostile area. A linkup may occur between a helicopterborne force and a force on the ground such as a mechanized force, between two converging forces, or in the relief of an encircled force.

A linkup involves a stationary force and a moving force. If both units are moving, one is designated the stationary force and should occupy the linkup point at least temporarily to effect linkup. The commanders involved must coordinate their schemes of maneuver. They agree on primary and alternate linkup points where physical contact between the advance elements of the two units will occur. Linkup points must be easily recognizable to both units and are located where the routes of the moving force intersect the security elements of the stationary force. Whenever possible, joining forces exchange as much information as possible prior to the operation. Linkup commanders review:

- Command relationships before, during, and after linkup.

- Coordination of fire support before, during, and after linkup.
- Fire support control measures.
- Method of linkup.
- Both near and far recognition signals and communications procedures to be employed. These recognition signals include pyrotechnics, arm bands, vehicle markings, gun tube orientation, panels, colored smoke, lights, and challenge and passwords.
- Operations to be conducted following linkup.

There are two methods of linkup. The preferred method is when the moving force(s) has an assigned limit of advance (LOA) near the other force and affects linkup at predetermined contact points. Units then coordinate further operations. The other method is used during highly fluid, mobile operations when an enemy force is escaping from a potential encirclement or when one of the forces affecting the linkup is at risk and requires reinforcement immediately. In this method, the moving force or forces continue to move and conduct long-range recognition via radios or other communication means, stopping only when they make physical contact.

- *Linkup When One Unit is Stationary:* When one of the units involved is stationary, linkup points are usually located near the limit of advance. It is also near the stationary force's security elements. Alternate linkup points are also designated since enemy action may interfere with linkup at primary points. Stationary forces assist in the linkup by opening lanes in minefields, breaching or removing selected obstacles, furnishing guides, and designating assembly areas. A restricted fire line (RFL) is established between the two forces and a restricted fire area (RFA) may be established around one or both forces linking up. A fire support coordination line (FSCL) is established beyond the area where the two forces are linking up. When a moving force is coming to relieve an encircled force, it brings those additional logistical assets required to restore the encircled unit's combat effectiveness to the desired level.

- *Linkup between Two Moving Units:* Linkup between two moving units is one of the most difficult operations. Limits of advance are established to prevent fratricide. Primary and alternate linkup points for two moving forces are established in the vicinity of the limit of advance. Fire support considerations are similar to when a stationary and moving force link up. Leading elements of each force should exchange liaison teams and be on a common radio net.

Section 6. Passages of Lines

5601. General.

A passage of lines is an operation in which a force moves forward or rearward through another force's combat position with the intention of moving into or out of contact with the enemy. It is always conducted in conjunction with another mission, such as to begin an attack, conduct an exploitation or a security force mission. The reasons for conducting a passage of lines are to:

- Sustain the tempo of an offensive operation with fresh forces.
- Maintain the viability of the defense by introducing fresh forces.
- Free a unit for another mission, reconstitution, routine rest, resupply, refresher/specialized training, or maintenance.

The conduct of a passage of lines involves two forces; the stationary force and the moving force. In the offense, the moving force is normally the attacking force and is organized to assume its assigned mission after the passage. The stationary force facilitates the passage and provides maximum support to the moving force. Normally, the plans and requirements of the moving force have priority. The time or circumstances at which responsibility for the zone of action transfers from the stationary force to the moving force must be agreed upon by the two commanders or specified by higher authority. Normally, the attacking commander assumes responsibility at or before the time of attack. Responsibility may be transferred before the time of attack to allow the attacking commander to control any preparation fires. In this latter case, elements of the stationary force that are in contact at the time of the transfer must be placed under the operational control of the attacking commander. Liaison between the forces involved should be established as early as possible.

Due to the risks associated with a passage of lines, they are, if possible, conducted at night or during periods of reduced visibility. The risks include fratricide, exposure to enemy counter-actions, and loss of control as responsibility for the sector is handed over from one force to another, and the potential of unintegrated movement of forces. The stationary and moving force commanders normally collocate their command posts in order to facilitate command and control of this demanding tactical operation.

Passage of lines occurs under two basic conditions:

- *Forward Passage of Lines.* A forward passage of lines is accomplished when a moving force passes through the sector of a stationary force occupying forward positions. The purpose of this passage may be to conduct operations such as an offensive operation, reconnaissance and security. The stationary force generally supports the moving force until the moving force masks the stationary forces direct fires and is out of range of the stationary force's indirect fires systems.

- *Rearward Passage of Lines.* A rearward passage of lines is where a moving force conducting a retrograde movement passes through the sector of a stationary force occupying a defensive position. In the defense, a withdrawing security force normally executes the rearward passage of lines. This operation may or may not be conducted under enemy pressure.

Fundamentals: Commanders reduce risk and ensure synchronization by detailed planning and decentralized execution. Typically the combat operation centers of both units involved will collocate while their subordinate elements conduct the passage of lines. When the rearward passage is complete when the last element passes rearward and it is

then that the battle handover is affected. Leaders consider three fundamentals in the conduct of a passage of lines:

- *Speed* - During the execution of a passage of lines, the intermingling of units with the resulting concentration of forces renders both forces vulnerable to enemy attack. Therefore, commanders avoid delay during the execution of a passage of line.
- *Secrecy* - The passage of lines must be concealed from the enemy as long as possible. Units must initiate a plan for deception and operational security.
- *Control* - Forces intermingling during the passage increase the need for control. Passage of lines requires close coordination and liaison between all headquarters and echelons involved in the activity and identification of the movement when one force assumes responsibility from another.

5602. Forward Passage of Lines.

On receipt of the warning order that directs an operation requiring a passage of lines, the moving force's commander and staff establish liaison, exchange standard operating procedures, and begin coordination with the stationary force. The moving force conducts reconnaissance from its current location to its designated assembly areas located generally to the rear of the stationary force. After completion of this reconnaissance, the moving force occupies these assembly areas. While this occurs, commanders and staffs of the two units involved coordinate:

- The exchange of intelligence and combat information.
- Current friendly dispositions and tactical plans, especially deception and obstacle plans. These include the subsequent mission guidance for both forces involved. Control measures for a passage of lines are generally restrictive in nature to prevent fratricide. If the enemy attacks during the passage he will probably require modification to prevent hampering friendly maneuver.
- Both long and short-range recognition symbols to reduce the probability of fratricide.
- When and under what conditions control of the area of operations will transfer from one headquarters to the other. The common commander must specify any special command relationships and retains control of the passage. The executing commanders normally agree upon the actual transfer of responsibility for the sector. In this case both commands should determine a time or identifiable event when command of the area of operations will pass to the commander of the moving force Provisions for movement control to include route selection, priorities for the use of routes and facilities, and the provision of guides. The moving force normally has priority for use of routes to and within the stationary force's tactical area of operation. Traffic control within this area is the responsibility of the stationary force until the moving force assumes control. During the passage, the moving force augments the traffic control capability of the unit in contact as required.
- Reconnaissance by elements of the moving force from up in their assembly areas and move forward to their attack positions and passage lanes.
- Security measures during the passage.
- Fires and any other combat support provided by the stationary force.
- Any combat service support provided by the stationary force.

- Measures to reduce both units' vulnerability to attack by enemy weapons of mass destruction.
- Operational security measures required before or during the passage. The stationary force continues to conduct aggressive counter-reconnaissance operations throughout the passage of lines.

The moving force normally prefers to conduct the passage through a gap in the stationary force's position versus either a lane or a route. Gaps are areas free of live mines or obstacles, whose width and direction will allow a friendly force to pass through in tactical formation. A lane is a route through an enemy or friendly obstacle which provides a passing force safe passage. The route may be reduced and proofed as part of a breach operation, or constructed as part of a friendly obstacle. A route is a prescribed course to be traveled from a specific point of origin to a specific destination.

Successful execution of a passage of lines requires effective communications between the two forces. The two forces exchange radio frequencies, call signs, and recognition signals. The commanders build redundancy of communication signals and means into their passage plans. The commanders designate contact points on easily identifiable terrain locations where passing and stationary forces must physically meet as a means of ensuring that communication at the low tactical level.

When executing the passage, the moving force's reconnaissance elements reconnoiter forward of the release points and establish a screen in front of the moving force. Main-body movement begins from their assembly areas to attack positions, where the moving force conducts its final preparations for the passage and attack.moving force. The stationary force clears any obstacles from designated passage gaps, lanes, and/or routes and guides elements of the moving force from the contact point(s) through the passage point(s). Any preparatory fires should coincide with the moving force's advance from the attack position to the passage lanes. The stationary forcenormally gives priority of fires to the moving force's elements moving in the passage lanes. Following the main effort, the moving force command post passes through the lanes as soon as possible after the lead elements complete their passage.

The stationary force furnishes any previously coordinated or emergency assistance, within its capabilities, to the moving force. The stationary forcet supports the moving force with fires for as long as possible, maintaining security of the passage lanes. Support by the stationary force generally terminates when the moving force's maneuver elements move out of direct-fire range. However, artillery, air defense, and other long-range systems may remain in support of the moving force until a previously designated event occurs (e.g. passing a phase line) or as directed by a higher headquarters.moving force. After responsibility for the area of operation transfers to the moving force, the commander of the moving unit coordinates all fires.

5603. Rearward Passage of Lines

Similar in concept to the forward passage of lines, the moving force may conduct a rearward passage either under enemy pressure or not under enemy pressure. The planning procedures for a rearward passage of lines closely resemble those for a forward passage of lines. Crucial to the successful execution of the rearward is close coordination between the two concerned commanders. This requirement for close coordination is even more critical when the tactical situation results in a staggered or incremental rearward passage

across a sector or area of operation. This may require the moving force commander to relinquish control of those elements that remain in contact at the time of the transfer of responsibility to the stationary commander.

The commanders and staffs of the two forces involved coordinate the same details as outlined for a forward passage of lines. The commanders of the moving force and the stationary force collocate their command posts at some time during the passage of lines. The two staffs coordinate those control measures necessary to support the retrograde operations and its associated rearward passage of lines. They agree upon the recognition plan and establish a probable time for the passage to begin. They confirm the battle handover line (BHL), primary and alternate routes, contact points, start points, passage points, release points, tactical assembly areas, emergency CSS points, and positions for artillery, air defense, and other units.

The stationary force identifies multiple routes through their sector and across their rear boundary to assembly areas and begins reconnaissance of these routes. The stationary force provides guides for the moving force, especially through obstacles, and mans both the contact and passage points. The moving force begins to reconnoiter its routes to the established contact points with the stationary force's troops. The stationary force establishes a security zone in front of the battle handover line and the stationary force commander may place direct fire assets anywhere in this zone to provide maximum support to the moving force to ease its disengagement.

The moving force maintains command of its subordinate elements throughout the retrograde and rearward passage. If the enemy continues to press his attack during the passage, the stationary force controls the battle from collocated command posts while the moving force monitors and controls the passage of lines. The moving force's command post passes through the lines as soon as possible after the lead elements complete their passage. Battle handover occurs when the stationary force assumes the defense of the sector. Generally, the stationary force assumes control of the sector after two-thirds of the passing force moves through the passage points.

The stationary force furnishes the moving force all possible assistance. Pivotal to the success of the rearward passage of lines is the provision of indirect and direct fire support by the stationary force to the moving force. This is especially important in covering the withdrawal of elements left in contact during a delay. The stationary force's fire support assets provide fire support until the moving force completes its passage. The moving force's fire support assets echelon rearward to provide continuous fire support for the moving force until it successfully disengages. Once the moving force hands over control of the battle to the stationary force, the stationary force initiates and clears calls for all fires forward of its location. The stationary force's engineer assets provide support to prepare the defense and execute the passage. Priority of effort initially ensures the ability of the moving force to move through passage lanes around the stationary force's defensive positions. It shifts to closure of these passage lanes once the moving force and any security elements disengage and withdraw through the security zone and obstacles.

The stationary force provides the moving force with the previously coordinated combat service support as far forward as possible. The stationary force concentrates on providing the moving force with emergency medical, recovery, and fuel to enable the moving force to rapidly move through the stationary force's positions.

Section 7. Relief in Place

A relief in place is an operation where one unit with a tactical mission is replaced by another. It is conducted as part of a larger operation primarily to maintain the combat effectiveness of committed units. The higher headquarters directs when and where to conduct the relief and establishes the appropriate control measures. The directing authority transfers responsibility for the mission and the assigned sector or zone of operations of the replaced unit to the incoming unit. Normally, the unit relieved is defending. However, a relief may set the stage for a resumption of offensive operations. A relief during an offensive will most likely occur during an operational pause. Otherwise, during an offense, the two forces concerned in the relief conduct a forward passage of lines. A relief may also serve to free the relieved unit for decontamination, reconstitution, routine rest, resupply, maintenance, specialized training, or another mission.

The relieving unit usually assumes the same responsibilities and generally deploys in the same configuration as the relieved unit. Command and control of a relief in place is by the close coordination of all the commanders involved. The co-location of unit command posts helps to achieve this level of coordination. If the relieved unit's forward elements can defend the area of operation; the relieving unit executes the relief in place from the rear to the front. This facilitates movement and terrain management.

There are two types of reliefs: a deliberate and a hasty relief in place. The major differences between them are the depth and detail of the planning and potentially, the execution time. Detailed planning generally facilitates a shorter execution time by determining what needs to be done, preventing most potential problems from occurring in the first place, and ensuring the availability of resources when needed.

In a deliberate relief, units exchange plans and liaison personnel, conduct briefings, perform detailed reconnaissance, and publish orders with detailed instructions. In a hasty relief, commanders use an abbreviated planning process and direct the execution using oral or fragmentary orders. In both cases, the relieved unit designates liaison personnel from its combat, combat support, and combat service support elements that remain with the relieving unit until completion of the necessary plans.

Fundamentals: Fundamental considerations common to both a hasty and a deliberate relief include:

- *Stealth* - The commander conceals the relief from the enemy for as long as possible. Accordingly, at first warning of the requirement for a relief, both the relieved and relieving unit review their operations security plans and procedures. Commanders may use deception measures in the conduct of a relief in place to maintain secrecy.
- *Speed* - Units conduct all relief operations, once initiated, as quickly as possible. Once initiated, a relief makes both units involved vulnerable to enemy attack because of their concentration, their movement, and the intermingling of forces. Any unnecessary delay during execution provides the enemy additional time to acquire and engage the forces involved in the relief.
- *Control* - The intermingling of forces inherent in a relief places increased burdens on C^2 systems. Traffic control, fire support coordination, obstacles plans, communications nets and facilities all require close coordination between all headquarters involved. Early liaison between the stationary and the relieving forces should occur.

Execution of a Relief in Place: The relief is a tactically vulnerable operation. The units involved must give special attention to security in the preparation and conduct of the operation. The intent is to conduct the relief in place without discovery by the enemy. Through the execution of this task the enemy should perceive only one unit's command structure in operation. Until completion of the relief, for security reasons, this should be the command structure of the defending unit.

The unit receiving the mission to conduct a relief in place may occupy the exact same positions as the unit it relieves. Alternatively, it may establish more favorable positions within the general vicinity of the relieved unit's location. The occupation of different positions makes early discovery of the relief by the enemy more likely. While the units involved in the relief plan, coordinate, and execute the relief in place, their common higher headquarters will continue to attack and disrupt the enemy's uncommitted and reserve forces.

As soon as the common higher headquarters issues the warning order, the relieving unit establishes communications and liaison with the unit to be relieved. The warning order includes the time of relief, units to be relieved and the sequence, and designates the relieving units. It contains some discussion of future missions, route priorities, any restrictions on advance parties, any extraordinary required security measures, and the time and place for the issuance of the complete order.

The CP monitors the current situation and coordinates withdrawal procedures with the unit being relieved. When time is short in a hasty relief, a small advance party from the relieving unit moves quickly to the main CP of the relieved unit. This advance party consists primarily of tactical command post personnel. It conducts the liaison functions for other staff agencies, coordinates the relief, and issues required fragmentary orders while subordinate units move to designated locations.

The relieving unit receives current intelligence, operations, and logistical information from the unit being relieved, common higher headquarters, adjacent units, and subordinate elements. The exchange of information on the enemy situation, friendly dispositions, terrain analysis, and fire and obstacle plans, coupled with reconnaissance, paints a picture for the commander of the relieving force to use in his planning and execution.

The fire support coordinators exchange target lists. They coordinate fire control measures and identify those artillery and other fire support units available to support the relief. The fire support assets of both units support the relief. This is critical in the event the enemy detects the relief and tries to exploit the situation. Units plan their fires to deceive the enemy and expedite the relief. Fire coordination measures in front of the positions of the unit being relieved remain in effect until the withdrawal of the relieved unit. The relieving unit then establishes, coordinates, and controls new fire control measures as required.

The relieving unit verifies the obstacle records of the unit to be relieved. The engineer priority is initially to mobility to get the relieving unit(s) into sector, focusing on those routes and lanes leading into the sector. Once the relief occurs, priority of effort transitions to support of the relieving unit's continuing mission.

Priority of the air defense effort is to protect passage points, battle positions, primary relief routes, and assemble areas. At a minimum, the air defense assets of both units

support the relief. Higher echelon and joint air defense organizations may also support the relief.

Any increase in activity in forward positions can reveal the relief to the enemy. Increased activity results from the movement of Marines and equipment out of position by the relieved unit and into position by the relieving unit. After any period of combat, there will be differences in the types and amount of equipment between the relieving unit and the relieved unit, even if they have the same table of organization and equipment (TOE). These differences can also reveal the relief to the enemy. To limit the extent of these indicators, the units concerned establish guidelines for the exchange of compatible equipment and supplies between the forces involved. It may be necessary to exchange certain weapons, supplies, equipment, and occasionally, vehicles between units. When there are major differences in the numbers of combat systems between the two units, for example, a tank heavy task force relieves a mechanized infantry heavy task force inoperable equipment or visual simulators may assist in hiding the change of units.

To maintain security during the relief in place, the relieving unit makes maximum use of the relieved unit's radio nets and operators. Both units conduct the relief on the command frequency of the relieved unit at all levels. The relieved unit's signal officer remains in charge of communications throughout the relief operation.

The relieving unit begins moving from its current location to assembly area(s) in the sector of the unit being relieved. Reconnaissance elements of the relieving unit will precede this movement with a route reconnaissance to the assembly area. They will conduct reconnaissance of the routes leading from the assembly area(s) to the positions of the unit being relieved later. The commander of the relieving unit normally conducts a leader's reconnaissance of these proposed positions before their occupation. The outgoing commander is responsible for the defense of his sector until command is passedat the time previously mutually agreed on by the two commanders. This should occur early in the process to ease both the relief and the subsequent operation. Normally, this occurs when the relieving unit occupies its assembly area(s).

As the first relieving element arrives from the assembly area to the position being assumed, it establishes a screen of the positions of the unit being relieved as the tactical situation permits. The remainder of the relieving unit then moves forward to positions behind the unit being relieved. The relieving unit may use the relieved unit's alternative and supplementary defensive positions to take advantage of any previous defensive preparations.

Normally the relieving unit's main command post co-locates with the relieved unit's main command post. Both commanders (or their designated representatives) remain together for the duration of the relief operation., All of the relieved unit's fire support assets reinforce those of the relieving unit. Remarks: TACON and OPCON only in joint opeations. During USMC operations command relationships organic or attached and support relationships DS or GS.When possible, the commander of the relieving unit sends a clear, short, and simple message to all units involved in the relief acknowledging the passage of command.

The relieved unit continues to defend and acts as a covering force. The relieving unit's advance parties coordinate procedures for the rearward passage of the relieved unit on order; the relieved unit begins withdrawing through the relieving unit and moves to assembly area(s). The relieved unit's crew-served weapons are usually the last elements relieved after giving the relieving unit its range cards. The relieving unit replaces them on

a one-for-one basis to the maximum extent possible to maintain the illusion of routine activity. The relieved unit's combat support and logistics assets assist both the relieved and the relieving units during this period. As the support elements of the unit being relieved displace, they leave the relieving unit critical supplies according to previously coordinated arrangements. The relieving unit then defends the sector.

In a relief in place, the preferred technique is to relieve rearward elements of the relieved force first and then relieve the forward positions. However, normally the relieved unit's fire support systems are the last systems relieved. If possible the relieved unit's artillery remains in place until all other relieved elements displace. If the relief is for the purpose of continuing the attack, generally both forces' artillery remains in place to support the subsequent operation. Artillery units are not normally required to relieve weapon system for weapon system unless the terrain limits the number of firing positions available. Until the change of command for the sector between the two units, all fire support means remain under the control of the relieved commander.

The relieving unit is responsible for all rear area functions. The two units' rear command posts also co-locate and a single traffic headquarters coordinates the movement in and out of the area or sector. One-way main supply routes can simplify the forward and rearward movement of both units. The relieving unit's rear command post controls both units' military police assets, if any, to control movement throughout the tactical area of responsibility.

It is highly probable that any future conflict requiring a relief will involve the replacement, at some point, of an allied force or sister service. The following additional points should be considered when such reliefs occur:

- Dissimilar unit organizations may require special adjustments in assigned sectors.
- Control of fire support may require special liaison.
- Language difficulties may require the increased use of guides.
- Use of relieved unit communications will require special signal arrangements and use of added operators.
- Ammunition and equipment incompatibility may make exchange more difficult.

Section 8. Breakout from Encirclement

Units will normally attempt to conduct breakout operations when

- Directed by the senior commander or falls within his intent.
- Units do not have sufficient relative combat power to defend encircled.
- There is not adequate defensible terrain available.
- The encircled unit will not be able to sustain itself for a sufficient period of time.

The encircled force normally conducts a breakout by task organizing with *a rupture force* , a *main body*, and a *rear guard*. If the commander has enough forces, he may organize separate reserve, diversionary, and supporting elements. Any of the forces may consist of aviation or ground combat units (one or both as individual elements or as task-organized combined arms teams) and appropriate combat service support organizations, based on METT-T.

Fundamentals:

- *Act Rapidly* - Generally, the best opportunity for a breakout attempt comes in the early stages of enemy encirclement. The enemy has not yet brought in sufficient combat power to encircle the friendly force in strength and weak points exist in the enemy force. An encircled force may be operating under adverse conditions and not have all of its technical intelligence systems operating. The commander may be forced to operate with low levels of intelligence concerning enemy strengths, weaknesses, and intentions. Within this environment, he should conduct aggressive reconnaissance to ascertain information on the enemy. The commander should also obtain information from available R&S assets. If the enemy is in close contact, the commander may be forced to conduct reconnaissance in force to ascertain information on enemy strengths. In either case, the commander must quickly select a course of action and develop a plan accordingly.

- *Reorganize the Command* - The unit must reorganize to conduct the breakout based on available resources. Without resupply, tank and mechanized infantry units may not be able to move all their vehicles in the breakout attack. Priority of support may be limited to the rupture force and rear guard, with the remainder of the force keeping only sufficient transportation assets to move them. The breakout plan should outline destruction criteria and all vehicles and equipment that cannot be moved, should be destroyed as soon as possible. To conduct a breakout attack, units typically task-organize a rupture force, reserve, main body, and rear guard.

Organization of Forces:

- *Rupture Force* - The encircled forces attack as soon as possible by employing one or more rupture forces to penetrate the enemy defensive positions. The commander must produce overwhelming combat power at the breakout point. The rupture force, which may vary in size from one-third to two-thirds of the total encircled force, is assigned the mission of penetrating the enemy-encircling position, widening the gap, and holding the shoulder of the gap until all other encircled forces can move through. The rupture force must be of sufficient strength to penetrate the enemy line. A favorable combat power ratio must be achieved at the point of attack by means of surprise, troop strength, mobility, and firepower.

Initially, the rupture force will be the main effort. The rupture force commander will probably have additional assets attached to his unit. These assets might include air defense or additional engineer personnel from any encircled engineer unit. The commander should integrate these assets properly for maximum combat power to achieve the rupture.

- *Reserve Force* - The reserve follows the rupture attack to maintain the attack's momentum and secure objectives past the rupture. After the rupture force secures the gap, the reserve normally becomes the lead element. When a unit receives the reserve

force mission, the commander must coordinate closely with the rupture force commander on the gap's location, the enemy situation at the rupture, and the enemy situation (if known) along the direction of attack past the rupture point.

Initially, the reserve will pass through the gap created by the rupture force. It is essential that the reserve continue a rapid movement from the encircled area toward the final objective (probably a linkup). If the reserve makes secondary attacks, it is important that it does not become bogged down. Artillery preparation may assist the reserve force in maintaining momentum out of the encircled area.

- *Main Body* - The main body consists of the main command post, the bulk of the combat service support (CSS), and some combat support (CS) assets. It contains those combat forces not required for other missions and should contain sufficient combat power to protect itself. It moves rapidly as a single group on multiple routes immediately behind the reserve. Security elements protect the flanks of the main body during movement. One commander should have sole command of this element to ensure orderly movement.

- *Rear Guard* - The rear guard consists of the personnel and equipment left on the perimeter to provide protection for the rupture and diversionary attacks (if a diversionary attack force exists). Forces left in contact must fight a vigorous delaying action on the perimeter so that no portion of the force is cut off. Under a single commander, the rear guard acts as a covering force to protect the main body from attack while it is moving from the area. In addition to providing security, it deceives the enemy as to the encircled force's intentions. It simulates the activities of the encircled force until they clear the gap. Once the breakout commences the rear guard and any diversionary forces disengage or delay toward the rupture. Perimeter forces integrate smoothly into the rear of the breakout column. Upon achieving the breakout, priority of fires may be shifted to the rear guard action. Above all else, the force must maintain the momentum of the attack or the force will be more vulnerable to destruction than it was prior to the breakout.

As other units support or follow the breakout, the rear guard commander must spread his forces over an extended area. This will require flexibility and mobility on the part of the rear guard. The perimeter must withstand enemy pressure.

- *Diversionary or Supporting Force* - The encircled force should divert enemy attention from the location of the rupture. A supporting or diversionary attack can assist the breakout attack by diverting enemy attention and resources away from the rupture effort. The forces conducting a supporting or diversionary effort may be from either inside or outside of the encirclement area. The commander should direct their efforts to a point where the enemy might expect a breakout or where a relief effort might occur. The forces participating in these efforts are as mobile as available vehicles and trafficability will allow. Mobile, self-propelled weapons systems ideally suit the needs of a diversionary or supporting force.

Success of the diversionary force is important to the success of any breakout operation. If the force fails to deceive the enemy of the encircled force's intentions, the full combat power of the enemy could be directed at the rupture point. On the other hand, the diversionary force may rupture the enemy's lines. If a rupture occurs, the diversionary force commander must know the commander's intent. He may exploit this success, or he may have to disengage and follow and support the reserve force.

Conduct of the Breakout

Detailed planning for a breakout attack may not be possible because the attack must be initiated so quickly after a friendly force is encircled. Units will conduct aggressive reconnaissance to confirm the enemy disposition. If the enemy-encircling force occupies strong positions in close proximity, the encircled unit may be required to conduct a reconnaissance in force at selected locations to ascertain enemy strengths and reactions. The unit initiates its breakout attack as soon as it develops sufficient intelligence concerning enemy dispositions. Its attack exploits conditions of limited visibility and gaps or weaknesses in the enemy's positions. If friendly forces enjoy air superiority, the breakout attack may be initiated during daylight hours to fully exploit the capabilities of close air support. Additionally, the probability of a successful breakout increases measurably if another friendly force attacks toward the encircled force as it attempts to breakout.

The unit takes all possible precautions to deceive the enemy as to the location of the main attack. The rupture force minimizes occupation of attack positions prior to the main attack. A supporting attack may be required to assist the rupture force in penetrating enemy positions and expanding the shoulders. Feints and demonstrations may also be employed to deceive the enemy as to the main attack. However, diversionary attacks need not always occur first.

The commander will organize and control his rupture force as he would a deliberate attack or movement to contact. The rupture force generates overwhelming combat power at the point of the main attack and attempts to rapidly penetrate enemy positions and expand the penetration. If the commander is hard-pressed to generate sufficient combat power with the rupture force and still maintain the perimeter defense, he may have to initiate a withdrawal in certain sectors, prior to the main attack, to generate combat power. If enemy forces are in strength at the point of penetration, the rupture force will likely hold the shoulders. If the enemy is not in strength, the commander may have the rupture force continue its attack as the main effort. If there are no identified enemy formations beyond the penetration, the rupture force may transition to a movement to contact. The follow and assume force is prepared to assume the main effort if the rupture force becomes decisively engaged short of its objectives.

The reserve moves in the approach march formation and is prepared to react to enemy counterattacks or exploit the success of the rupture force. The main body follows the reserve. It moves on multiple routes in either the approach or road march formation. It contains sufficient combat power to protect itself and reinforce the flank or rear security forces should they come under attack. Typically, the flank security forces will conduct a screen or guard mission.

The rear guard will initially conduct a withdrawal to break contact with the enemy forces around the perimeter and then diminish the perimeter as it delays back behind the main body. If the enemy closely pursues the breakout force, the rear guard may become the main effort. The reserve should then be positioned where it can also support the rear guard.

The priority for fire support is initially with the rupture force. Fire support assets must also move with the main body and rear guard so that security forces have adequate fires.

Engineers with the rupture force focus on mobility operations. Engineers with a follow and assume force or reserve improve routes and replace AVLBs with other bridging assets. Engineers are also task-organized with the flank security elements whose focus is countermobility operations. The rear guard must also have adequate engineers to conduct countermobility operations.

Air defense assets will be prioritized to protect the rupture force, rear guard, and then the main body. Sufficient medium-and short-range air defense systems must be dedicated to cover all critical points through which the encircled force will pass.

All units and vehicles will carry the maximum supplies possible on board with emphasis on Class III and V. The encircled force will only take those vehicles it can support. It may be possible for the encircled force's higher headquarters to establish an intermediate support base as the breakout attack moves toward a linkup.

Exfiltration

If success of a breakout attack appears questionable and a relief operation is not planned, one way to preserve a portion of the force might be through organized exfiltration. Exfiltration is the act of passing stealthily out of enemy-held territory. An exfiltration effort is preferable to capture and can distract the enemy from his main effort. It may produce intelligence for the main force. Exfiltration by the encircled force is employed only as a last resort by the encircled force once after destroying or incapacitating all equipment (less medical) not accompanying the breakout force. Casualties may have to be left in place by exfiltrating forces with supplies and medical attendants.

Exfiltration is most feasible over rough or difficult terrain, through areas unoccupied by the enemy, or through areas not covered by enemy observation and fire. These conditions often allow undetected movement of small elements when movement of the entire force would present more risk. It requires resourcefulness, a high degree of discipline, expert land navigation skills, and motivation. It is unlikely that the entire force will be able to exfiltrate since there may be a requirement to create a diversion. Good small-unit leadership is essential in this type of operation.

Based on reconnaissance, the exfiltrating unit subdivides into small groups and exfiltrates during periods of limited visibility by passing through and around enemy defensive positions. If detected, they seek to bypass. Units use preparatory fires to cover their movement as well as to get rid of stockpiled ammunition. Rally points, routes, and linkup plans all must be coordinated.

Exfiltration may be more difficult to accomplish mounted using combat and tactical vehicles. This is due to the limitations they impose upon exfiltration routes and the increased noise involved in their operation which makes their detection by the enemy more likely.

Attacking Deeper

A course of action that the enemy is not likely to expect for an encircled force is to attack deeper. It involves great risk, but may offer the only feasible course of action under some circumstances. It is only feasible if a unit can sustain itself while isolated. When the enemy is attacking, attacking deeper into the enemy rear may disrupt the enemy's offense and provide an opportunity for linkup from another direction. If the enemy is defending and the attacking force finds itself isolated through its own offensive action, it may continue the attack toward its assigned objective.

Logistical shortfalls can be relieved somewhat by aerial resupply, external forces establishing intermediate support bases, and possibly by using captured supplies. Close air support will also have greater difficulty in providing support due to the enemy situation around the encircled force.

Section 9. Road March and Assembly Areas.

A tactical road march is a tactical movement used to relocate units within the combat zone in order to prepare for combat operations. Mechanized units must often travel long distances in order to position themselves to perform their next assigned mission. The primary consideration of the march is rapid movement, but security is required even though contact with enemy ground forces in not expected. During tactical road marches, the commander is always prepared to execute maneuver. A mechanized unit, when executing its tactical missions, moves across the terrain using the formations and techniques of movement appropriate to the situation. The movements are conducted as road marches and differ from a movement to contact in that the purpose is relocation, not to gain enemy contact, with the primary consideration being rapid movement of units.

Prior to the execution of the road march the battalion plans and issues a march order that includes:

- Routes to the release point (RP) and start point (SP).
- Route strip map.
- Order of march.
- SP and RP locations and times.
- Maximum catch-up speed.
- Designation of quartering parties.
- Intervals between vehicles and march units.
- How routes will be marked and by whom.
- Road restrictions.
- Actions on enemy contact.
- Actions at halt or for disabled vehicles.

- Actions in assembly area.
- Resupply, maintenance, and feeding procedures.
- Scheduled halts.
- Fire support plan.

The battalion scout platoon will conduct a route reconnaissance that identifies the following:

- Availability and conditions of routes.
- Start point/release point confirmation.
- Location of critical points.
- Location and suitability of holding/assembly area and areas for maintenance /refueling.
- Distances between critical points, and total distance between start point and release point.
- Location of obstacles.
- NBC monitoring of assemble area.
- Information on all enemy on routes.
- Alternate routes, if required.

The battalion will then conduct the road march ensuring that it maintains security during the march. Designated security elements eliminate enemy elements to allow uninterrupted movement of the main body.

Assembly Area - An area in which a command is assembled preparatory to further action. The tank battalion will typically require a minimum of a four square kilometer area when directed to occupy an assemble area. In the assembly area the unit reviews and issues orders, services and repairs vehicles, receives and issues supplies, and feeds personnel. The assembly area, when used to prepare for an attack, is usually well forward. If possible, it should be out of range of enemy artillery.

The tank battalion will select an assembly area with the following characteristics: cover from direct fire, good exits and entrances, and adequate internal roads, and space for dispersion of vehicles and equipment. Overhead concealment is important if the unit is to remain in the area for any length of time. Vehicles, equipment, entrances, and exits should be camouflaged to keep the enemy from detecting the location of the unit.

As the battalion occupies the assembly area the main body moves into position without halting or blocking routes. Security is established immediately and radio listening silence or minimum radio transmissions maintained. All units are resupplied and operations orders are issued.

Chapter 6

Tactical Logistics

Section 1. General

6101. Introduction. During operations and training, tank units have a propensity to consume tremendous amount of resources. Therefore, it is imperative that thorough logistical planning be conducted to sustain tank units The tank battalion is capable of self-administration, organic supply support, food service support, and medical services that provide routine and emergency medical care. The battalion has significant organic logistic capabilities for short-term self-sufficiency, but requires extensive CSS, especially fuel and ammunition, for sustained operations. The battalion's tank companies conduct first and second echelon maintenance on all organic equipment. The battalion provides second echelon maintenance on motor transport equipment and third echelon maintenance on tanks, tank-mounted weapons, and tube-launched, optically tracked, wire-command link guided missile (TOW) systems. The battalion possesses a significant amount of motor transport equipment. In the future, the preponderance of logistical support may be conducted via seabasing as envisioned in the concept Operational Maneuver From the Sea. The goal is to reduce the logistical footprint ashore.

6102. Methods of Support. Distribution procedures of logistical resources generally fall into one of two categories: "demand-pull" or "pull", and "supply-push" or "push". In the pull method, the supported unit directly controls the orders for resupply and other support services. The push concept uses calculations of anticipated logistics requirements to position or deliver resources when and where they are likely to be needed. Marine logistics traditionally employ a combination of both methods. Routine support, such as resupply of food, water, and fuel should be planned on a standard schedule, or "pushed", based on consumption rates and employment. The supported unit should request specific kinds of resupply, such as maintenance, medical support, and ammunition on as as-required basis. Note that in order to keep supply channels clear, requests for routine support, which has already been identified and is being pushed forward, should be omitted.

6103. Trains. A train is a means of internally task organizing and employing the organic CSS assets of the tactical unit. They are the link between the forward/subordinate elements of the tactical units and the supporting CSSE. The organization and capabilities of the trains vary with the mission and the tactical situation. Trains predominately provide supply, evacuation, and maintenance services. At battalion and company levels, trains increase responsiveness to the tactical situation.

(1). Unit trains. Unit trains centralized CSS assets of the supported unit at a single location under the control of the unit commander. Unit trains are most appropriate in the defense or during periods of low operational tempo. The commander uses this option when the tactical situation dictates self-contained train operations. On occasion, the terrain may require this configuration. Unit trains provide simplicity, economy, and survivability against ground attack.

To increase responsiveness of CSS assets, the tank battalion will often task organize and echelon its CSS assets into Combat Trains and Field Trains

(1) Combat Trains. Combat trains are organic elements that provide critical combat service support in forward areas. Combat trains are tailored for the tactical situation. They normally contain: petroleum, oils, and lubricants (POL); ammunition and other ordnance items; maintenance contact teams with a recovery and limited repair capability; and medical support. The exact composition depends on METT-T. The combat trains area must not take up space needed by the forward units, and supply and maintenance vehicle traffic must not impede the freedom of movement of combat and combat support units. Combat trains at the tank battalion level will normally include the battalion aid station.

(2). Field Trains. Field trains consist of the remaining organic and attached CSS elements located further to the rear. The commander selects this option to improve responsiveness, flexibility, and survivability against air attack. This option is preferable when the unit is in the offense.

The most important criterion for trains is responsiveness. However, seldom will a site be found which has all the desired positioning characteristics for the battalion's trains. However a good train location has:

(1) Defensible terrain to allow the best use of limited personnel.
(2) Enough space to permit dispersion of both vehicles and activities.
(3) Concealment from hostile ground and air observation.
(4) Firm ground to support materials handling, heavy equipment operations and ammunition and POL activities.
(5) A helicopter landing site for helicopter resupply and medical evacuation.
(6) An adequate road network between the train and forward elements and between the train and the CSSE.
(7) Good communications with forward elements and with the supporting CSSE.
(8) A source of water.
(9) No terrain which are obstacles to CSS operations or which give the enemy targeting sources.

Built up areas are often good locations for trains because they provide cover and concealment for vehicles and sheltered areas for maintenance at night. When located in built-up areas, trains normally occupy building near the edge of the area for better security and to reduce the chances of being cut off and trapped.

Proper positioning of trains minimized displacements and increases the quantity and quality of CSS. When displacing trains, the technique most suitable to the tactical situation is selected. Trains may be displaced in their entirety concurrently with the maneuver of the tank unit or by echelon. Echelonment of the trains will provide immediate responsive support, flexibility in usage, and may increase survivability of assets. When trains are echeloned into combat and field trains, the S-4 will normally control the combat trains and designate the commander of the field trains.

6104. Responsibilities of Battalion Personnel

Battalion S-4. The Battalion S-4 is responsible to the commanding officer for battalion's combat service support. When trains are echeloned into combat and field trains, the S-4 will normally control the combat trains and designate a commander for the field trains. He is responsible for the immediate logistical needs of the supported units and the logistical needs of the field trains for future resupply. The S-4 must keep abreast of the tactical situation at all times in order to anticipate the battalion's needs. He also keeps the S-4A informed of the current situation and coordinates any special logistical requirements with him.

Battalion S-4 Assistant (S-4A). The S-4A is positioned by the S-4. He must work in unison with the S-4 to deconflict logistical requirements. He works with the H&S CO for security requirements, with the Supply Officer concerning resupply, and the Motor Transport Officer (MTO) concerning delivery of logistics packages (LOGPACs). He is responsible to the S-4 for organizing and directing resupply forward from the field trains to the combat trains. He directs the formation of logistics packages (LOGPAC's) for any special or nightly resupply. He works closely with the Motor Transport Officer in forming the composition of the LOGPACs. He keeps the S-4 informed of the current situation and anticipates any special logistical requirements that may exist.

Headquarters and Service Company Commander. The Headquarters and Service Company Commander normally serves as the Headquarters Commandant in the field. In addition to his duties in planning for the security and displacement of the COC, he has responsibility for, layout, physical security and movement of the battalion's trains. He works closely with the S-4A and advises him of all security matters. He is also responsible for coordinating fire support with the FSC for the field trains. Additionally, he normally leads the quartering party to locate new sites prior to displacement of the COC and trains or acts at the convoy commander when moving the COC and/or battalion trains.

Motor Transport Officer (MTO). The MTO is normally positioned in the field trains. During the planning stages of the operation, the MTO is tasked with consolidating all wheeled vehicle requirements and organizing convoys. The MTO must be aware of what supplies and equipment will be sent forward so that an adequate number of vehicles will be made available. He assembles any special LOGPACs and the nightly LOGPAC as directed by the S-4A. *The MTO will work closely with the S-4A to ensure all convoys are prepared to move in a timely manner***.** The MTO may lead delivery of the LOGPACs forward personally or task one of his subordinate. When the field trains must move, he assists the H&S CO in preparing all movement orders and when moving, may become the convoy commander. Once at the new field trains location the MTO assists in the initial layout of the field trains.

Battalion Maintenance Platoon Commander. The Battalion maintenance platoon commander is normally positioned in the field trains with the tank maintenance platoon. He advises the S-4A as to what maintenance assets should be sent to the combat trains

when needed. He coordinates with the H&S Company Commander concerning security and is responsible for the security of his assigned sector within the field trains perimeter. He establishes maintenance operations and makes liaison with CSSE maintenance elements for requested support.

Tank Maintenance Officer (TMO). The TMO is normally positioned in the combat trains. His function is to coordinate the forward maintenance and evacuation effort. He acts as the OIC of the maintenance contact teams in the combat trains. When called forward to assist the company/team, the TMO, in conjunction with company personnel, will decide whether the vehicle can be fixed in place, taken to the Unit Maintenance Collection Point (UMCP), or evacuated to the field trains.

Battalion Supply Officer. The Battalion Supply Officer is located in the field trains. He is responsible for the requisition, receipt, maintenance, and disposition of supplies necessary for operations. He is normally the OIC of the LOCC and is responsible for LOCC operations and setting up an LOCC watch. He is the primary POC with the CSSE for class I, III and V resupply.

Battalion Maintenance Management Officer (MMO). The MMO serves as the battalion liaison officer at the CSSE. He is the primary point of contact for the coordination of logistical support for all elements, including detachments and attachments. He monitors the combat service support nets. He is linked by wire to the field trains when possible. If he is not with the FSSG, he is responsible to the H&S CO for the security of his assigned sector within the field trains perimeter.

Battalion Motor Transport Maintenance Officer is normally located in the field trains. He normally works under the supervision of the Battalion Motor Transport Officer and coordinates repair/recovery/evacuation of all wheeled assets.

Battalion Communications Maintenance Officer is normally located in the field trains. He normally works under the supervision of the Battalion Communications Officer and coordinates repair/evacuation of communications assets.

Battalion S-4 Chief is normally located in the combat trains. Assists the S-4 with the operation, and movement of the combat trains. Assists the Battalion S-1 (located with the S-4) with security for the combat trains and personnel accountability. Additionally, he is responsible to the H&S CO for the security of his assigned sector within the field trains perimeter.

Headquarters and Service Company Gunnery Sergeant. The H&S Company Gunnery Sergeant assists the H&S Company Commander with his duties. He normally works in the LOCC and assists the H&S Company Commander with security. He also provides logistical support for all personnel in the field trains.

Company Maintenance Chief. The Maintenance Chiefs organize and supervise the company mechanics. They supervise ERO preparation, distribute Class IX supplies, and

coordinate with platoon sergeants on platoon maintenance status and recovery of vehicles to the UMCP.

Tank Leader. Tank leaders normally receive LOGPACs and guide service support elements to and from their positions.

Company Supply Sergeant. The company supply sergeant is normally located in the field trains. During the day he coordinates the company resupply needs and ensures that all items are placed in the company LOGPAC for the night resupply. He accompanies the resupply convoy forward to the combat trains and checks in with the S-4. The tank leader will then lead the appointed vehicles to their respective resupply. Once resupply has taken place, the supply sergeant will return to the combat trains enroute to the field trains.

Section 2. Organic Capabilities

Self-sufficiency. The nature of mechanized warfare demands that tank units be self-sufficient to a certain degree.

(1) Identify critical requirements. Many logistics requirements cannot be predicted with satisfactory accuracy. High-use repair items can be identified and stockpiled prior to a deliberate operation. The combat service support element (CSSE) of the MAGTF builds and maintains a Class IX repair parts block based on empirical data. Repair items that are low-demand, but critical, may not be have been planned for by the CSSE. The Class IX block should be reviewed by the tank unit commander, or his representative, to identify any combat deadlining components that may be overlooked. Critical logistics requirements, or "show-stoppers" should be forecasted to the CSSE.

(2) Enhance organic capability. Mechanized forces tend to operate over great distances throughout the battlespace. The mobility of the M1A1 tank provides for a nonlinear array of forces with considerable separation between units, including CSSE units. Tank units should enhance their organic CSS capability whenever possible. For instance, qualifying several crewmen as Helicopter Support Teams (HST) allows for greater flexibility in vertical resupply.

(3) Safeguarding resources. Sea basing reduces the need to establish logistics facilities ashore, thereby reducing the footprint and vulnerability of the land-based portion of the force. Tank units require certain organic CSS capabilities. Protection of those resources is normally afforded by locating them safe distances from direct combat, reducing responsiveness, or by allocating sufficient forces for defense, reducing forces available for other operations.

Section 3. Outside Agency Support

Logistics is the science of planning and carrying out the movement and maintenance of forces. Logistics provides the resources of combat power and limits what tank units can

do on the battlefield. Precision logistics seeks to expand or stretch those limits. To improve efficiency, precision logistics applies "just-in-time" inventory management and improved methods for forecasting demand.

6301. Prioritize Requirements. Working within the limits of sea-based logistics, resupply requests must be prioritized. The establishment of priorities and the allocation of resources in accordance with those priorities is a function of command, not logistics. Logistics command and control implements the priorities determined by the commander.

6302. Rapid Response. Anticipated future resupply, not identified as preplanned "pulsed" support, must be prepared for immediate shipment. Resupply items identified but not carried by the maneuver forces should be packaged for rapid resupply. For instance, palletized stocks of likely repair items should be ready for short-notice vertical resupply.

6303. Redundant Requests. Requests for logistics resupply should be routed through higher headquarters to the supporting unit, and to the supporting unit concurrently. Current communications systems, such as the Digital Automated Communications Terminal (DACT), support redundant and immediate requests. Pre-formatted messages allow users to quickly compose and transmit logistics requests to higher headquarters and the supporting unit.

6304. Collocation of Key Players. Positioning key personnel, where they can be most effective in the relay and transfer of information, can be tremendously beneficial. For instance, a maintenance representative from the ground combat element (GCE) cross-decked to the operations section of the CSSE would be able to interpret and forecast maintenance requirements.

Section 4. Resupply Operations

The Marine tank unit uses three methods in conducting supply operations: pre-positioning, routine resupply, and emergency resupply. The method to be used is determined after an analysis of the factors of METT-T.

6401. Pre-positioning. Pre-positioning of supplies, also known as prestock, may be required in some defensive operations. Normally, only Class V items will be prestocked, but Class I and Class III supplies may be included in some situations. The location and amount of a prestock must be carefully planned and then verified through reconnaissance and rehearsals. Each TC must be informed of prestock locations. The following considerations influence selection of prestock sites and execution of the resupply operation:

- Availability of overhead cover for the prestock location.
- Cover and concealment for the location and routes that vehicles will take to reach it.
- Security procedures required to safeguard the resupply operation.

- Procedures for protecting friendly personnel and vehicles in the event prestocked ammunition are ignited.

There are several techniques for accomplishing prestock resupply in the defense. Normally, Class V (ammunition) is positioned next to or within a vehicle's fighting position. This enables the tank crew to resupply during an engagement without displacing. Another technique is to locate Class V supplies en route to or within a subsequent BP. Use of this method requires consideration of security procedures to safeguard the prestock. Resupply of Class III (specifically fuel) is usually accomplished behind a unit's current BP or en route to a subsequent BP. In the defense, the tank unit may rotate vehicles or sections through prestock positions based on the enemy situation and shortages within the unit.

6402. Routine Resupply. These operations include regular resupply of items in Classes I, III, V, and IX and of any other items requested by the tank unit. Routine resupply is planned at battalion level and normally takes place at every opportunity. The company LOGPAC is a mixture of company and battalion assets that transport supplies to the company.

LOGPACs are normally assembled in the battalion field trains area under the supervision of the S-4 or his designated representatives and the tank company commander or his designated representatives. Replacements and hospital returnees normally travel to company/platoon locations on LOGPAC vehicles as required. Once the LOGPAC is prepared for movement, the tank leader moves the vehicles forward from the field trains as part of the task force resupply convoy to the logistic release point (LRP). The company first sergeant or his representative meets the LOGPAC and guides it to the company resupply point. The company then executes tailgate or service station resupply; refer to the discussion of these resupply techniques later in this section.

6403. Emergency Resupply. Emergency resupply, normally involving Classes III and V, is executed when the tank unit has such an urgent need for resupply that it cannot wait for the routine LOGPAC. Emergency resupply procedures start with immediate redistribution of ammunition in individual vehicles, followed by cross leveling of ammunition. Once requested through the commander, first sergeant, or tank leader, the battalion brings emergency supplies forward. Based on the enemy situation, the tank unit may have to conduct resupply while in contact with the enemy. Two techniques are used to resupply the unit in contact:

- Limited supplies are brought forward to the closest concealed position, where the tailgate technique of resupply is used.
- Individual vehicles or sections disengage and move to a resupply point, obtain their supplies, and then return to the fight. This is a version of the service station technique.

6404. Techniques of Resupply. The tactical situation will dictate which technique of resupply the tank unit will use: tailgate, service station, a variation of one type, or a

combination of both types. The situation will also dictate when to resupply. Generally, the unit should attempt to avoid resupply during the execution of offensive operations; resupply should be done during mission transition. Resupply is unavoidable during defensive missions of long duration.

- *Tailgate Resupply.* In the tailgate technique, fuel and ammunition are brought to individual tanks by the tank leader or another responsible individual who is assisting him (see Figure 5-1). This method is used when routes leading to vehicle positions are available and the unit is not under direct enemy observation and fire. It is time-consuming, but it is useful in maintaining stealth during defensive missions because tanks do not have to move.

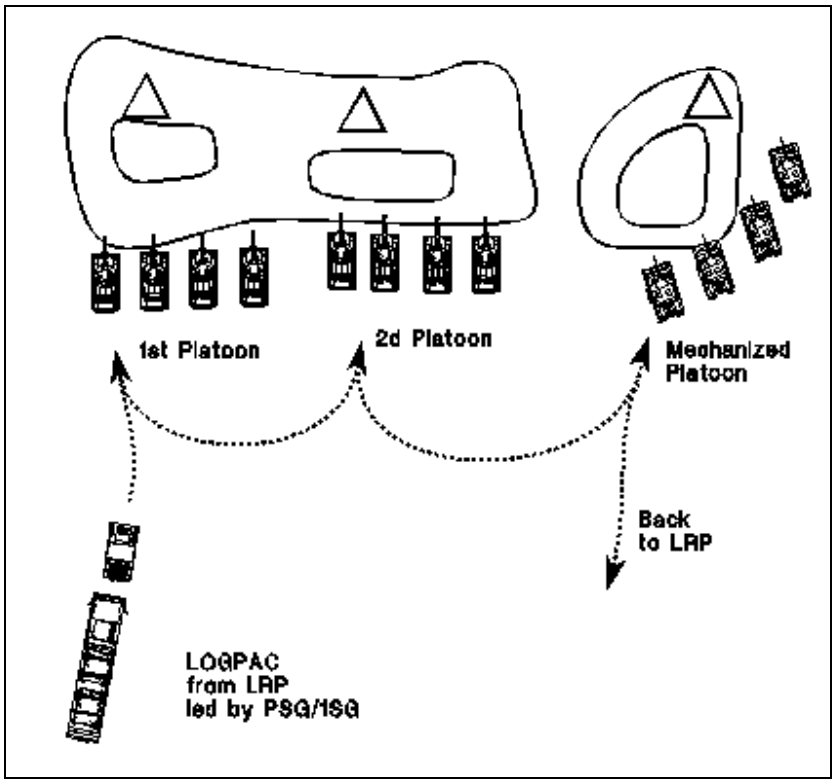


Figure 5-1. Tailgate resupply technique.

- *Service Station Resupply.* In the service station technique, vehicles move to a centrally located point for rearming and refueling, either by section or as an entire platoon. Service station resupply is inherently faster than the tailgate method; because vehicles must move and concentrate, however, it can create security problems. During defensive missions, the platoon must be careful not to compromise the location of fighting positions. A company being resupplied using this technique can maintain security by having only one platoon to move at a time; a platoon can do the same by moving a section to the resupply point at a time.

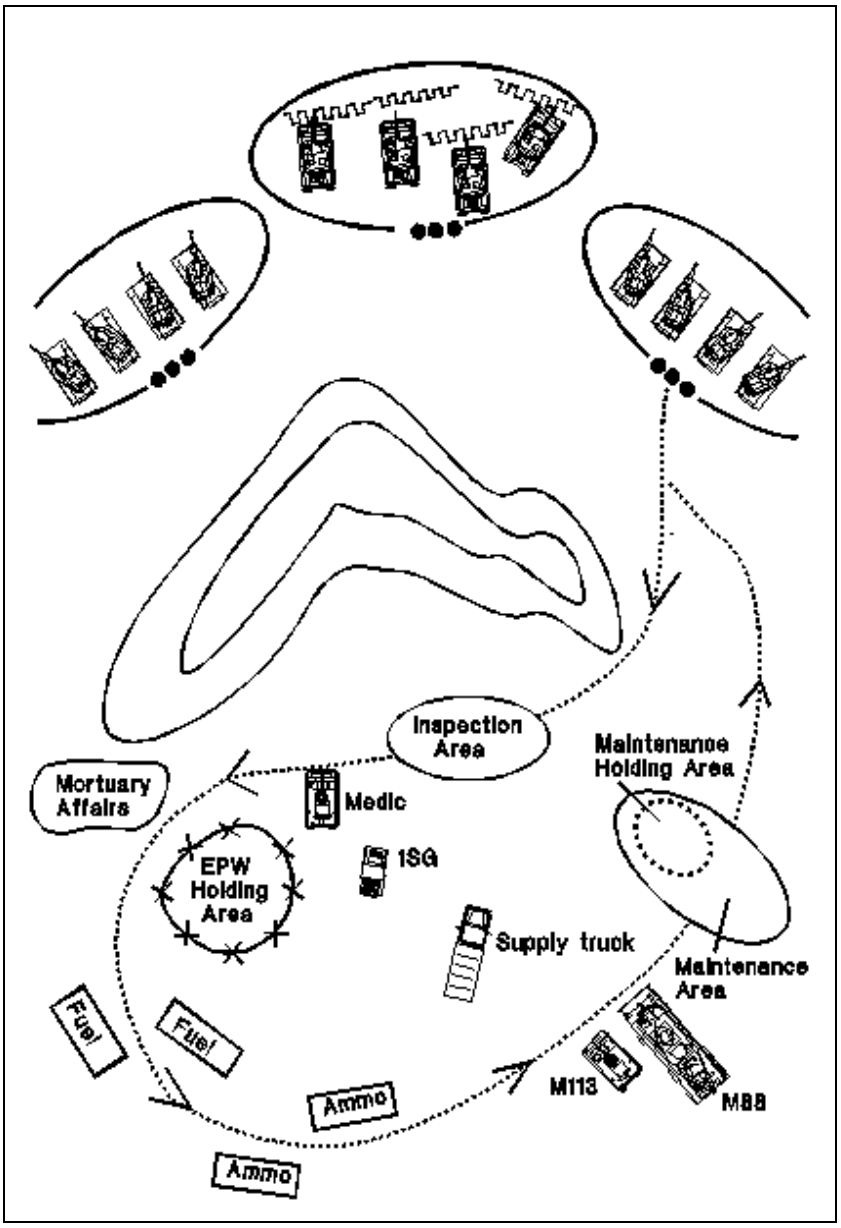


Figure 5-2. Service station resupply technique.

- *Combination Resupply.* A platoon leader can vary the specifics of the two basic techniques, or he can use them in combination. During a defensive mission, for example, he may use the tailgate technique for a mounted forward OP and the service station method for the remainder of the platoon located in hide positions (see Figure 5-3).

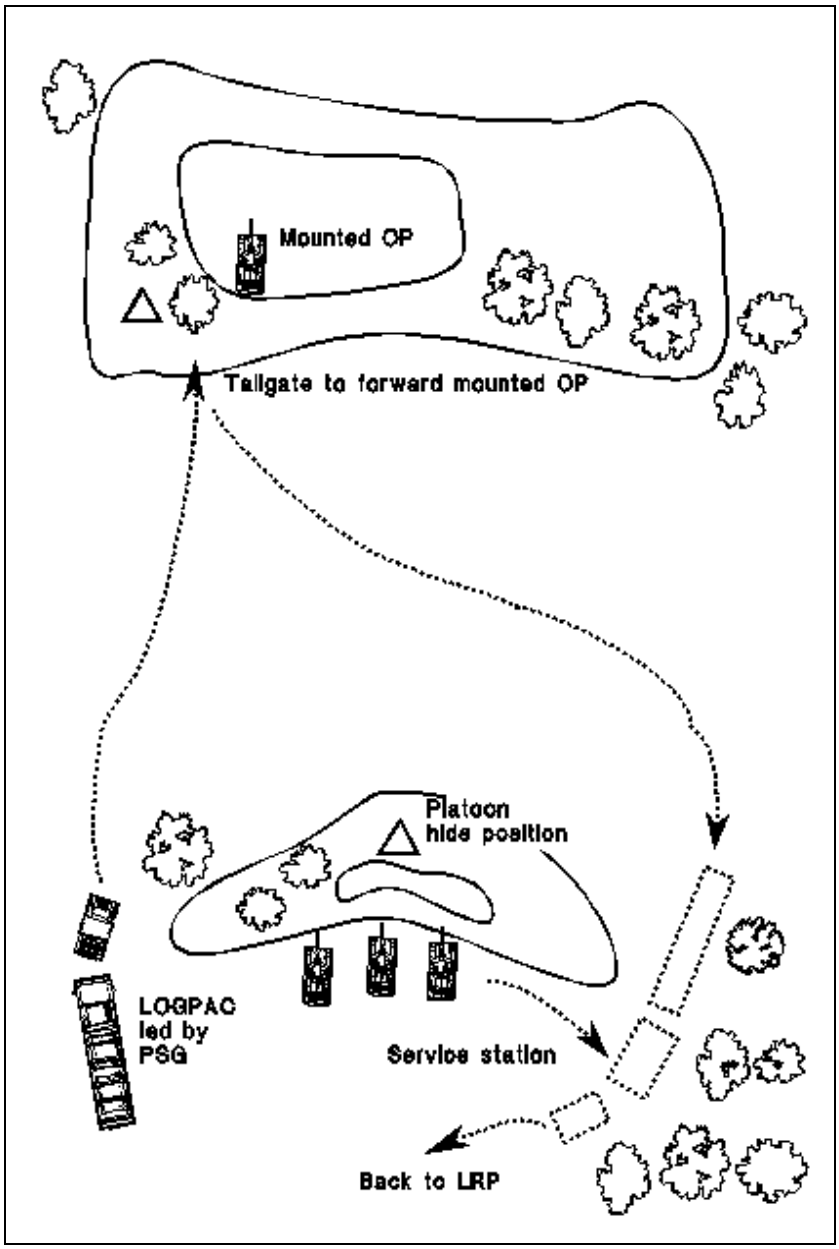


Figure 5-3. Combination of resupply techniques.

Section 5. Maintenance Operations.

Proper maintenance keeps equipment and materiel in serviceable condition. It includes PMCS, as well as the functions of inspecting, testing, servicing, repairing, requisitioning, recovering, and evacuating equipment and materiel whenever necessary.

Maintenance tasks are divided into four levels: unit (which includes both operator and organizational maintenance), CSSG direct support (DS), CSSG general support (GS), and depot. The tank company commander and tank platoon leader is concerned primarily with supervising operator maintenance, ensuring scheduled services are performed as part

of organizational maintenance, and providing support for DS maintenance elements when equipment must be evacuated.

Repair and recovery are accomplished as far forward as possible. When equipment cannot be repaired on site within two hours, it is moved to the rear (but only as far as necessary for repair) to a unit maintenance collection point (UMCP).

6501. Unit Maintenance - Operator. Operator maintenance includes proper care, use, and maintenance of assigned vehicles and crew equipment such as weapons, NBC equipment, and night vision devices. The driver and other crewmembers perform daily services on the vehicle and equipment, to include inspecting, servicing, tightening, performing minor lubrication, cleaning, preserving, and adjusting. The driver and gunner are required to record the checks and services, as well as all equipment faults that they cannot immediately correct, on the equipment inspection and maintenance worksheet. The worksheet is the primary means of reporting equipment faults through the TC to the platoon sergeant and platoon leader and ultimately to organizational maintenance personnel.

Checks and services prescribed for the automotive system, weapon systems, and turret are divided into three groups:

- Before-operation
- During-operation.
- After-operation.

These checks and services are explained in every operator's manual and should be conducted as stated in the manual. Although operators must learn to operate equipment without referring to the manual, maintenance must be performed using the appropriate technical manual--not from memory!

6502. Unit Maintenance – Organizational. Organizational maintenance is the responsibility of the unit assigned the equipment. The operators and unit mechanics perform it. Because the tank's design allows rapid modular replacement of parts, many faults can be corrected, and the vehicle returned to the tank unit, with minimum delay.

When the operator identifies a problem that is beyond his level of maintenance capability, he notifies his chain of command so the problem can be isolated and corrected. The company maintenance team has trained mechanics who are authorized to perform unit maintenance tasks as prescribed in the technical manuals for the vehicle. When company or battalion maintenance teams are not authorized to make a particular repair, they will arrange to have it done by CSSG maintenance assets.

6503. CSSG Maintenance. Personnel from the CSSG maintenance company, which normally supports a battalion or regiment, perform this level. It consists of repair and/or replacement of parts, assemblies, and components. Maintenance support teams from CSSG units are usually located forward with the battalion field trains. These support

teams may go forward to fix disabled equipment on site, but they are limited in what they can fix and where they can go.

6504. Evacuation. Evacuation is necessary when a damaged vehicle cannot be repaired on site within two hours or when evacuation is the only means (besides friendly destruction) available to prevent capture or destruction by the enemy. When a vehicle needs to be evacuated, the platoon leader or platoon sergeant reports its exact location, the vehicle type, and the extent of damage, if known, on the company net to the company maintenance chief. The crew should remain with the vehicle to assist in evacuation and repair, to provide security, and to return the repaired vehicle to the platoon as soon as possible.

A recovery vehicle from the company or battalion maintenance team will evacuate the damaged vehicle. The vehicle is evacuated to an LRP, the main supply route (MSR), or the UMCP as necessary.

The recovery team normally employs an M88A1 recovery vehicle. This vehicle travels with the company maintenance team under the direction of the maintenance chief. The location of the company maintenance team during operations is designated in the company OPORD.

If a recovery vehicle is not available or if time is critical, other platoon vehicles can evacuate the damaged vehicle for short distances. The decision to do this rests with the platoon leader. Towing procedures are listed in the operator's manual. Self-evacuation by the platoon is a last resort that should be considered only to prevent losing the damaged vehicle to the enemy.

If the damaged vehicle will be lost for an extended period, the platoon can replace other vehicles' damaged equipment (such as weapons and radios) with properly functioning items from the damaged vehicle. Damaged equipment can then be repaired or replaced while the vehicle is being repaired.

6505. Destruction. When damaged or inoperable equipment cannot be evacuated and it becomes apparent that enemy capture is imminent, the equipment must be destroyed. Platoon leaders must ensure crews are trained to destroy their vehicles rather than allow them to fall into enemy hands. Instructions for destroying equipment are included in the operator's manual for each item.

The platoon leader should get the commander's permission before destroying any equipment. When communications fail, however, the platoon leader must use his judgment to decide whether or not evacuation is possible. Every reasonable effort must be made to evacuate secure equipment, classified materials, and all weapons.

Chapter 7

Amphibious Operations

Section 1. General

An amphibious operation is defined as a military operation launched from the sea by naval and landing forces, embarked in ships or craft, with the primary purpose of introducing the landing force ashore to accomplish the assigned mission. Marine tank units normally participate in amphibious operations as part of an Amphibious Task Force, Maritime Preposition Force, or Marine Expeditionary Unit (Special Operations Capable). There are four types of amphibious operations, each designed to have a specific impact on the adversary.

There are four types of amphibious operations, each designed to have a specific impact on the adversary.

- **Amphibious Assault**. The principal type of amphibious operation. It involves establishing a force on a hostile or potentially hostile shore.
- **Amphibious Raid**. An amphibious operation involving swift incursion into or the temporary occupation of an objective followed by a planned withdrawal.
- **Amphibious Demonstration**. An amphibious operation conducted for the purpose of deceiving the enemy through a show of force intended to delude the enemy into adopting a course of action unfavorable to him. .
- **Amphibious Withdrawal**. An amphibious operation involving the extraction of forces by sea in naval ships or craft from a hostile or potentially hostile shore.

Except for the amount of detail, planning for the employment of tanks during an amphibious operation does not differ from planning for tank operations ashore. The operation plan provides basic information for a buildup of tanks ashore, their initial employment, and logistical support in combat operations ashore. Amphibious planning is conducted concurrently and in coordination with the planning of other units of the landing force. This section presents the steps that are taken by the tank battalion commander and his staff as they plan for tank employment in an amphibious operation.

Section 2. Staff Planning Considerations

7201. General.

Planning for amphibious operations is conducted in inverse order. This means that the first step is a determination of the objectives to accomplish the mission. The next step is the development of a scheme of maneuver that will secure those objectives in order to accomplish the mission. The scheme determines the plan for landing that, in turn, determines the plan for debarkation. Finally, the plan for debarkation provides the basis for the embarkation plan. Planning guidance from the commander landing force provides the information described as steps one and two. After receipt of planning guidance, the senior tank officer in the landing force and his staff prepares estimates of supportability. These are based on:

- Mission and concept of operations of the landing force.

- Enemy situation with particular attention to the enemy antitank defenses.
- Terrain, weather and beach conditions.
- Shipping and landing craft availability.
- Tank strength available to the landing force.

Tank units prepare their own plans based on the guidance and decision made at the MAGTF level. During the preparation of these plans, tank officers assist supported unit staffs in preparing their plans.

7202. Embarkation Plan

Upon receipt of the shipping allocation, the tank battalion can commence embarkation planning. Necessary forms and instructions are completed. These forms provide a means for listing the personnel and equipment to be assigned to each ship. Final embarkation plans can be developed after studying the assigned ships' characteristics pamphlets and direct liaison with the ships' officers. At this time a final determination is made on whether tanks will be pre-boated prior to completing the embarkation plan.

7203. Landing Plan

The landing plan is the basis on which an orderly ship-to-shore movement can be conducted by the landing force. The ship to shore movement plan is the integrated sum of detailed plans, tables, diagrams, and schedules prepared by Navy and LF commanders. It is concerned with establishing relative priorities for landing units of the landing force. The battalion prepares only those forms, which are required, based on the method of landing. When subordinate units of the tank battalion are attached to infantry units, their plan for landing will be reflected in the landing document of the units they are supporting. Plans for the landing of tactical units are found in the landing plan appendix to the amphibious operations annex of the operation plan. The plan for landing of supplies is found in the combat service support annex to the administrative/logistics plan.

7204. Intelligence Requirements

The timely and continuous receipt of intelligence is a basic factor in the employment of tanks. During amphibious planning, as during combat planning, every effort is made to gain extensive information and intelligence relative to terrain, weather, and enemy situation. However, included within each of these categories are items of special emphasis as discussed below.

Terrain. Tank intelligence requirements relative to terrain places emphasis on information about beaches and terrain inland from the beaches. Required information about the beaches includes:

- Location, length, width, gradient, composition of the beach and land adjacent to the beach, and trafficability of the land.
- Existing and reinforcing tank obstacles on and adjacent to the beach.

- Suitable exits.
- Sea approaches including underwater gradient and offshore obstacles.
- Surf, tide, and current conditions.

Weather. Weather conditions assume special importance to tank units in amphibious operation. Weather affects the surf conditions and conditions of the sea, which are critical to the use of landing craft and landing ships. Winds and visibility influence control and coordination of tank units during landing. Rough seas have an adverse effect on the offloading of tanks. Precipitation affects not only visibility, but also trafficability. Extremes in temperatures give added importance to logistics requirement. Detailed weather information is required to include predicted:

- Visibility as affected by weather.
- Winds.
- Precipitation.
- Surf and sea conditions including the height of breading surf.
- Temperature.

Enemy Situation. There is a requirement for current intelligence on the enemy situation at all stages of amphibious planning. Initial tank planning is based on available intelligence supplemented by assumptions. However, the relative inabilities to materially alter plans once the assault has begun, and the need of the tank battalion and its subordinate units to be well informed, are reasons for seeking accurate and detailed intelligence on the enemy. Specific intelligence of importance to the tank battalion regarding the enemy situation includes:

- Beach antitank defenses.
- The enemy overall counter-mechanized capability, to include the location of enemy armored units and reaction time against the landing force.
- Enemy air capability.
- Enemy electronic warfare capability.
- Enemy NBC capabilities.

Section 3. Embarkation/Debarkation Procedures for Amphibious Operations

7301. General.

Amphibious Operations involving Marine Corps Tank personnel and assets are normally characterized by movement from ship to shore via Landing Craft Utility (LCU) or Landing Craft Air Cushion (LCAC).

Fording Kit. Every tank has a fording kit. They need to be applied before conducting amphibious operations.

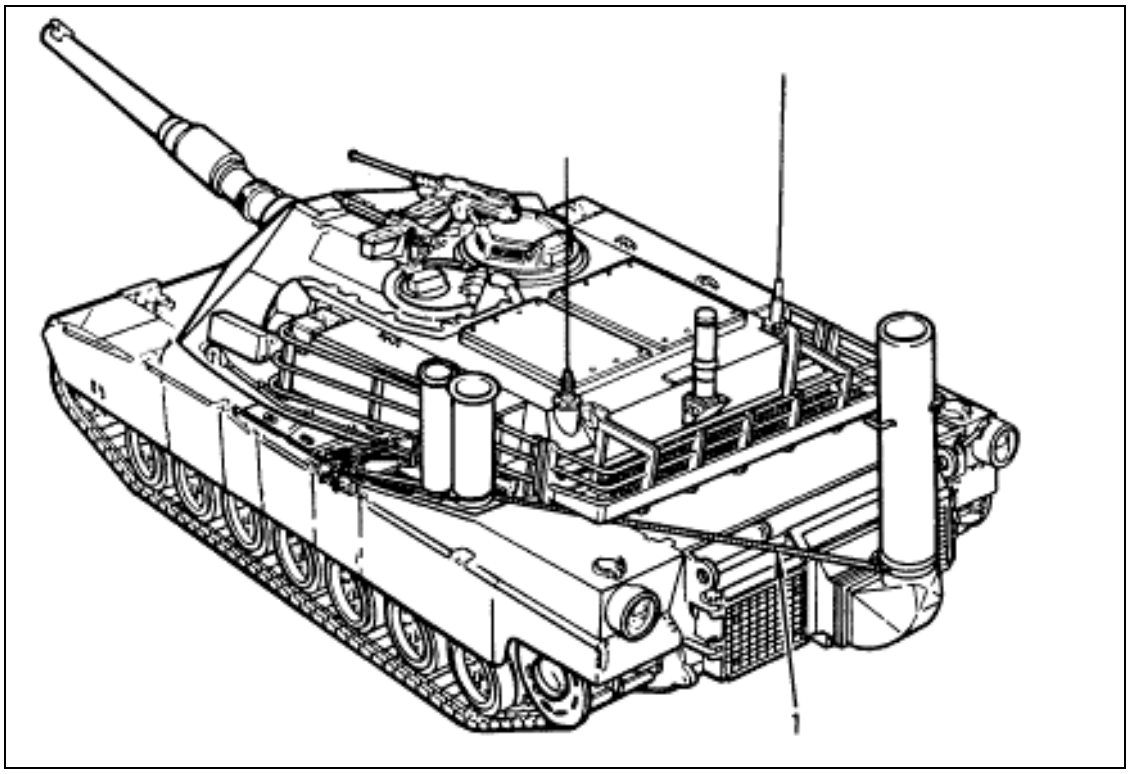


Figure 7-1 M1A1 Tank with Fording Kit

EQUIPMENT DATA

Environmental Characteristics

Fording Depth: 78 inches (2 m)
Additional Wave Action: 12 inches (30.48 cm)
Fording Depth Capability: maintained on slopes up to 40%
Crosscurrent: 20 mph (32 km/h)
Sea State Conditions 2
Water: fresh or salt

Equipment Characteristics

Fording Duration: 10 minutes
Automotive Power Performance Degradation of M1Al Tank: NMT 30% (acceleration & speed)
Dimensions (increase in length of M1Al tank w/kit installed): NMT 24 inches (60.96 cm)
Weight (increase in weight of M1Al tank w/kit installed): 350 lb (159 kg)
Installation or Removal: 2 hours with three-man crew
M1Al Tank Operating Speed: 4-6 mph (6-10 km/h) at 78 inches (2 m)

Packing Data

Box 1 of 4
Weight253.0 lb (115 kg)

	Dimensions	76-1/8 x 28 x 23 in (193.36 x 71.12 x 58.42 cm)
	Cubic Feet	28.37 cu *ft* (0.79 cu m)
Box	2 of 4	
	Weight	187.0 lb (85 kg)
	Dimensions	35-1/8 x 35-1/8 x 29-3/4 in (89.22 x 89.22 x 75.57 cm)
	Cubic Feet	21.24 cu ft (0.59 cu m)
Box	3 of 4	
	Weight	167.0 lb (76 kg)
	Dimensions	33-1/4 x 30-5/8 x 23-1/4 in (84.46 x 77.79 x 59.06 cm)
	Cubic Feet	13.70 cu ft (0.38 cu m)
Box	4 of 4	
	Weight	166.0 lb (75 kg)
	Dimensions	50-3/4 x 36 x 20-1/2 in (128.91 x 91.44 x 52.07 cm)
	Cubic Feet	21.67 cu *ft* (0.61 cu m)

7302. Planning Considerations.

a. Beach.

- Prior to embarkation or debarkation from landing craft review the beach survey. It is the Beachmasters responsibility to provide a copy of the survey to the Craftmaster.
- Ensure the beach gradient is 40% or less.
- Ensure the path to and from the craft is void of obstacles.

b. LCU Loads.

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- When loading 2 M1Al tanks, utilize the rear and amidships spots; reposition LCU after first tank is off loaded.
- AVLB's and tanks with track width mine plows must be loaded in the forward spot due to the width of the vehicles.
- Griping vehicles down is performed by the embarked crewman. It is the Craftmasters call when to gripe down.
- When practical keep LCU loads tank pure.

c. LCAC Loads.

- 1 MlAl can be loaded on an LCAC.
- Vehicles are always griped down.
- Crew will ride in the crafts crew compartment, the driver rides in the tank.

d. Tank with Mine Plow.

- Must be positioned in the forward spot on an LCU.
- Must be on loaded and off loaded with a negative ramp (Ramp angle below horizontal) on the LCU to prevent damage to the LCU.

- Dunnage must be placed parallel along the path of the track, under the craft ramp and perpendicular to the path of the tank (creating a speed bump) in order to raise the height of the mine plow to prevent damage to the ship when off loading vehicles from landing craft into the well deck.

e. Responsibilities.

Embarked crews.

- *It is the ultimate responsibility for the tank commander to determine if the embarkation/debarkation of the tank is safe.*
- Griping down.
- Remaining on the Tank (LCU), crew compartment (LCAC).
- Ensure the gun tube does not interfere with movement of the landing craft into or out of the ship.

Craftmaster.

- Provide gripes.
- Provides depth soundings; along the end of the ramp, *(3* feet is considered a good ramp), at the hinge and aft of the wingwall.
- Grounds the craft prior to off loading.

Beachmaster.

- Provides modified surf index (MSI) and hydrographic survey to craftmaster.
- Salvages grounded equipment.

Ship.

- Provide USMC life jackets.
- Provide dunnage.

7303. Coordinating Instructions.

a. Pre Amphibious Operations Checks:

- Complete installation of fording gear in accordance with TM 08953A-14 +P
- Ensure all yo-yo cords are taped up.
- Ensure positive communications between TC's and drivers.
- When using the driver's night sight, utilize battery vice vehicle power to prevent arching from leakage through the driver's hatch.

- Tank load plan cannot have any gear attached to left turret sponson box that will interfere with fording stacks and not allow turret to traverse to front. The gun should be at max elevation during onload, and then leveled once it is griped down.
- Once fording stacks are in place the tank can be run for approximately 10 minutes before overheating.

b. Before embarking on LCU:

- Ensure turret seal is inflated.
- Loader's hatch is closed.
- Turret power is in the manual position at the loader station.
- Driver's hatch is correctly locked.
- Reaffirm positive communications between TC and driver.
- Review hand and arm signals with naval personnel to ensure that there is a common understanding.
- Ensure proper positioning of naval personnel to preclude them being caught between the tank and a bulkhead.
- Loading instructions will be taken from the boat commander.

c. Pre Disembarkation of the LCU:

- Ensure turret seal is inflated.
- Loader hatch is closed.
- Turret power is in the manual position at the loader station.
- Driver hatch is correctly locked.
- Reaffirm positive communications between TC and driver.
- *Make sure the boat commander checks the depth in front of the entire ramp. he should not just check one side but instead along the entire front of the boat.*
- Ensure the depth of the water from the bow ramp to the end of the wingwall is no more than five feet.
- Remember, as a TC you are responsible for the tank and if you feel that it is too deep to come off the craft, you do not have to exit the craft.

d. Disembarkation of LCU:

- Driver takes all commands from the TC.
- When disembarking from the LCU the tank commander should time the movement of the tank to coincide with a lull in the wave swells.
- Start moving forward slowly. Once *2/3* of the vehicle is off the ramp, the TC should have the driver gradually increase speed to full throttle until the vehicle is out of the water.
- Drivers need to stay calm; remember to listen to the TC, expect some leakage through the driver's hatch.

e. Abandon the tank:

If the tank has aborted and it will not restart; the tank is taking water in through the TC hatch and the TC feels that the crew is in danger of being trapped inside the tank, he will give the signal to abandon the tank. If the signal to abandon the tank is given, the following procedures will be followed:

- Commander, order crew to start emergency drill and exit tank when flooding cannot be controlled with bilge pump.
- Driver, verify parking brake is released and engine is shut down.
- Driver, unscrew turret seal valve to deflate turret seal.
- Loader, unlock turret lock.
- Commander, position AUX HYDR POWER switch to ON.

WARNING: *Before traversing turret, alert crew and make sure all personnel are clear of turret. Crewman can be injured or killed if turret is traversed while body parts are extended between turret and hull.*

- Gunner, traverse turret counterclockwise until turret opening is aligned with driver's station. If turret cannot be traversed with hydraulic power, traverse and align turret manually. If turret cannot be traversed, inform driver to exit through driver's hatch.
- Loader, lock turret lock.
- Commander, turn off VEHICLE MASTER POWER switch.
- Loader, open driver's station access screen.
- Driver, lower seat and headrest and disconnect helmet leads.

WARNING: *Do not extend any part of body from turret into driver 's station unless turret lock is set to LOCKED. You may be killed if turret is traversed while you are between turret and driver 's station.*

- Driver, exit driver's station to turret through turret opening.
- Crew, exit tank if flooding becomes excessive. If flooding is not excessive, wait in tank until tank is towed ashore or emergency personnel arrive.

NOTE:*The following steps are to be performed only after determining that the turret cannot be traversed*
Driver, disconnect leads to helmet at quick-disconnect. Gunner, max elevates the main gun tube.

WARNING: *Driver's hatch may be difficult to open until water has completely filled compartment. Once hatch is open, exit as quickly as possible.*

Driver, flooding compartment.

(a) Lift drain valve handle to open drain valves.
(b) *Unscrew* two wing nuts and remove middle periscope.

(c) Press button on hatch lifting handle and push up on handle all the way and then let go.
(d) Turn crank clockwise to open driver's hatch.

Driver, assume safe position on hull or turret until tank is towed ashore or emergency personnel arrive.
Remaining crew, exit through turret hatch.

f. Loss of Communication between driver and TC.

While backing on the LCU: Driver stops and crew attempts to reestablish communication. If communication can't be reestablished, and if the entire tank is on the boat, the crew with assistance from members of the boat crew will ground guide the tank onto the boat. If the tank is still partially in the water the TC will inform (the best way he can, set up a SOP before the operation) the driver straight off the ramp up onto shore and attempt to fix the communication problem.

While driving off the LCU: Driver stops, tank crew attempts to reestablish communication. If communication can't be reestablished, and if the entire tank is on the boat the crew will stand fast until communication can be reestablished. If the tank is partially on the ramp and the boat, the crew, with assistance from members of the boat crew will ground guide the tank back onto the boat and stand fast until communications can be reestablished. If the tank has already started to leave the ramp, the driver will continue to drive straight until he is out of the water.

Chapter 8

Military Operations Other Than War

Section 1. Introduction.

Military operations other than war focus on deterring war, resolving conflict, promoting peace, and give support to civil authorities in response to domestic crises. MOOTW may involve elements of both combat and noncombat operations in peacetime, conflict, and war. Task organized as part of a MAGTF, Marine tank units may be called upon to support a wide range of operations in various political and geographical environments. Most recently Marine tank units have participated in Military Operations Other Than War (MOOTW) in Cuba, Somalia and Haiti. Because of the relatively large slice of resources necessary to deploy, operate, and sustain mechanized forces, tank units are usually used to execute MOOTW activities that take maximum advantage of their inherent capabilities: armor protected firepower, cross terrain mobility, and shock effect. Tanks are employed in offensive and defensive missions during MOOTW using procedures similar to those described in chapters 3 and 4.

In MOOTW tank units may be assigned missions traditionally handled by infantry or military police forces. For example, a tank unit could be tasked as reaction forces to support crowd and riot control. Problems such as potential casualties to non-combatants and collateral damage of local infrastructure can arise when tank units are used in this type of role. To perform effectively and efficiently, tank crewmen should receive special equipment and training before executing such operations

Disciplined, well-trained, combat-ready commanders and crewmen can adapt to the specialized demands of MOOTW. To achieve a high degree of readiness, tank unit must be thoroughly trained before deployment in such areas as: the operational environment, rules of engagement (ROE), force protection, and civil affairs. Flexibility and situational awareness are paramount requirements, especially for unit commanders.

Section 2. Operational Considerations

NOTE: The term "environment" in the following discussion of MOOTW, refers to the cultural, political, and military context in which these operations take place, as well as to the terrain and weather of the area of operations.

8201. Environment

MOOTW is often conducted in a politically sensitive environment. Tank crewmen must consider every individual action as having significant potential political or operational impact. This places increased importance on tank crew discipline, decentralized execution of lawful orders, cultural training, and exploitation of any existing foreign language capabilities within the force. One act of civil disturbance or intolerant treatment of civilians can turn a supportive populace against the force and be exploited by potential adversaries. This same act may also be a focal point in turning domestic public opinion against a continued effort. Each Marine must understand the political and economic situation, as well as the cultures, climate, and terrain of the region. He should

understand the military situation, especially the doctrine, tactics, and equipment that are employed by belligerent, guerrilla, terrorist or paramilitary forces. Orientation training should also clarify the following environmental conditions: the tempo of operations, local news media, and the American role in the operation.

The commander must consider his activities in relation to similar activities carried out by agencies of the US government, allies, and the host nation, as well as nongovernmental and private volunteer organizations. Additional MOOTW considerations include:

- Media scrutiny will be extensive.
- Rules of engagement will be more restrictive.
- Identification of hostile parties may be more difficult.
- Military assets may be routinely used to support noncombat functions.
- Interaction with civilian noncombatants will be routine at every level of command.

Tempo.

Although extreme tension may underlie MOOTW, the tempo of operations is generally slow. For the tank unit involved in MOOTW, the key to a secure environment is not only to diligence in maintaining OPSEC, but also to varying security techniques and procedures to avoid predictability.

Rules of Engagement.

ROE are directives issued by military authority that delineate the circumstances and limitations under which US forces will initiate and/or continue combat engagement with other forces encountered. Rules of engagement dictate when, where, against whom, and how force—especially lethal force—may be used. ROE are important for a wide variety of reasons—moral, political, legal, tactical, and technical. Key considerations in the design of ROE's include:

- US Policy
- International Law
- Host Nation Law
- The Threat
- Commander's intent
- Operational considerations
- Tactical capabilities

Specific aspects of ROE may be intended to address force protection issues like combat identification and fratricide, or the use of particular types of weapons in certain situations. Culture may be an important factor as well. In some cultures, the use of human shields or the participation of women and children in combat activities may be routine, and this may necessitate adjustments to ROE. ROE may also forbid engagements in the vicinity of cultural or artistic sites, because such sites are often irreplaceable. Their destruction may inflame the emotions of the local populace or turn domestic and/or

international opinion against the operation. For this reason, tank crews in particular, must understand the lethality of the tank's weapon systems and automotive capabilities with regard to potential collateral damage to noncombatants, property, and local infrastructure (e.g. buildings, roads, rails, and bridges).

Due to the political sensitivities involved, ROE are often more restrictive in MOOTW than in war. First, legal issues may have more impact on ROE design in MOOTW, which often raise a variety of controversial political-military issues. More fundamentally, however, "keeping the peace" and "fighting for peace" are distinctly different missions and require different rules of engagement. For example, MOOTW operations are typically constrained to use minimum force necessary to accomplish the mission. ROE in these circumstances are designed to prevent the start or escalation of a conflict. Hence, policies on the use of force are usually based on a defensive posture, requiring demonstrated hostile intent before deadly force is justified. Such ROE more closely resemble those for law enforcement agencies than military units. Nonetheless, missions encountered by forces in MOOTW often require the ability to use force proactively.

ROE issues are also greatly complicated by the urban environment. ROE designed for use in one area of a city may be irrelevant or counterproductive in another because of differences in the urban geometry, structural materials, and in the nature of the mission. For instance, the use of tank main gun rounds and coaxial machine rounds in a flimsy shantytown may pose more danger to adjacent friendly forces and to noncombatants than to the enemy. In other sections of the city, the use of HE rounds may threaten to disperse hazardous materials or contaminants into the air or water. Obviously, combat missions in one part of town will require different ROE than support to local police operations in another section might. The presence of adversary fighters dressed in civilian clothes, common in urban conflicts, will further complicate operations.

In all circumstances, ROE should be tactically sound, flexible, understandable, and enforceable. It must be disseminated and understood at all levels. Inappropriate or poorly enforced ROE may result in friendly casualties (including fratricide), collateral damage, and the deaths of noncombatants, seriously hampering an operation. ROE should be designed to fit the dynamics of the situation. Frequent changes or adjustments in ROE can generate confusion and create morale problems. ROE CAN NEVER NEGATE THE RIGHT AND RESPONSIBILITY OF FRIENDLY FORCES TO SELF PROTECTION.
ROE must convince friendly personnel in harm's way that their well-being has been given adequate weight and that there are legitimate reasons for restrictions on the use of force. Otherwise, the ROE are likely to be misapplied or even disobeyed.

The M1A1 tank's armor protection is well suited to take the impact of small arms fire and rocks and bottles. Tank units provide the MAGTF with a highly effective graduated response should the situation require an escalation in the use of force. Graduated response options include use of tanks physical presence of tanks for crowd control to use of the tanks main gun and machine guns to destroy barricades or engage snipers. Likewise, tank units provide the MAGTF with the potential to provide a highly effective graduated response should the situation require an escalation in the use of force

Force Protection.

As with any operation, force protection is a primary goal for every commander involved in MOOTW. The armor protected firepower and automotive capabilities of the tank allow it to be employed in a number of MOOTW missions that provide the commander with options for minimal risk of personnel, equipment, and supplies. Risk assessment should focus on an evaluation of enemy elements, belligerent forces, civilians and terrain and weather considerations.

Antiterrorism protective measures training should include operational security, physical security and personal security measures. Examples include avoiding patterns and routines, strict noise and light discipline, use of cover and concealment, obstacles, OPs, and early warning devices. Commanders must also consider the protection afforded by armor vehicles, and secure locations for eating, resting, and conducting maintenance. For more information see MCRP 3-02D Combatting Terrorism and MCRP 3-02E, The Individuals Guide to Understanding and Surviving Terrorism.

Marine Responsibility.

As noted, the professionalism and discipline instilled in a well-trained, well-informed, and effectively led Marine are critical to the safe accomplishment of the MOOTW mission. Discipline is important in regards to security. Commanders should stress to their Marines that terrorists and thieves may attempt to infiltrate positions and or mount vehicles either to steal equipment and supplies or to inflict injury.

Public Affairs and the Media.

By their very nature all MOOTW missions receive intense public interest and scrutiny. In many cases it is public interest or media interest which ultimately resulted in the MOOTW mission. Also, much of the public's knowledge of military activity is provided by the news media. All Marines should understand and following:

- Identifying, understanding, and fulfilling command information needs is critical to success. Marines must receive information specific to the operation through command channels and world, national, and local news. This enhances moral and unit esprit. It eases distractions and reduces the boredom, fear, isolation, uncertainty, rumor, and misinformation inherent in MOOTW.

- Every Marine is a spokesperson. PA guidance should be widely disseminated. Although the commander is normally the unit's official spokesperson, informed junior Marines can also be honest, accurate, forthright, and insightful spokespersons.

- The media is an important information channel to the American public. In the high visibility, politically sensitive MOOTW environment, public opinion is a critical element. By proactively assisting news media representatives, commanders help them

understand the US role in these operations and produce stories that foster the confidence of the American public. Nevertheless commanders must balance OPSEC and other operational requirements with these needs.

In many MOOTW environments, the local populace may view the presence of tank units as both a highly visible and potentially intimidating event. As a result, tank units frequently draw the attention of the media. Journalists may use film footage of tanks for "symbolic effect" in their broadcasts. Whether intentional or not, the message commonly interpreted by domestic, international, and local audiences is that employment of tanks equates to firm commitment and demonstration of American resolve in the respective crisis. Consequently, the tank crew's actions may be highly scrutinized and questioned by the media. This is another reason why crewmen need to be disciplined, well trained, and understand their mission and ROE.
See MCWP 3-33.3 Public Affairs for more information.

Joint Publication 3-07, Joint Doctrine for Military Operations Other Than War, lists the following sixteen types of MOOTW. Although tank units may be employed all types of MOOTW, they may be employed in the majority of types:

- Arms Control
- Combating Terrorism
- Department of Defense Support to Counterdrug Operations
- Enforcement of Sanctions/Maritime Intercept Operations
- Enforcing Exclusion Zones
- Ensuring Freedom on Navigation and Overflight
- Humanitarian Assistance
- Military Support to Civil Authorities
- Nation Assistance/Support to Counterinsurgency
- Noncombatant Evacuation Operations
- Peace Operations
- Protection of Shipping
- Recovery Operations
- Show of Force Operations
- Strikes and Raids.
- Support to Insurgency

The following sections focus on common roles tanks can play in MOOTW:

8202. Noncombatant Evacuation Operations.

The tank unit can be used in the NEO scenario as an element of a security force or reaction force (See Section 8 for details on reaction force.)

Security. The tank unit can establish a BP or conduct a relief in place of a BP as part of a MAGTF perimeter or strongpoint defense. (See Chapter 4 for detailed information on

defensive operations.) Dismounted infantry may or may not be integrated with the tank unit. Coordination with dismounted patrols and OPs outside the perimeter is critical for situational awareness. See Appendix B for detailed information on employment of tanks with Infantry. Signs, in the local language, should be posted as necessary within the engagement area to identify movement restrictions on the local populace.

Mine Clearing of Evacuation Route. When called upon the tank unit can proof the evacuation route to detect and neutralize mines. Based on METT-T factors, the unit may use tactical movement techniques to provide overwatch for the proofing vehicle, which can be a tank (equipped with a mine roller, if available) or an engineer vehicle. If mines are detected, the unit conducts breach force operations within its capability; whenever possible, the platoon should be equipped with a mine plow and a breaching kit containing wire and bolt cutters, grappling hooks, and demolitions. If the obstacle is not within the platoon's breaching capability, engineers are called forward. At all times, the proofing and overwatch vehicles should take notice of anything that is out of the ordinary, such as new construction, repairs to damaged buildings, plants or trees that seem new or out of place, and freshly dug earth. These conditions may indicate the presence of newly emplaced or command-detonated mines. The tank unit conducts tactical movement breaching operations as discussed in and Appendix C.

8203. Humanitarian Operations

The tank unit can establish a battle position as part of a MAGTF humanitarian supply site. See Chapter 4 for detailed information on defensive operations. Dismounted infantry may or may not be task organized with the tank unit. Coordination with dismounted patrols and OPs outside the perimeter is critical for security. See Appendix B for detailed information on employment of tanks with infantry. Signs, in the local language, should be posted as necessary within the engagement area to identify movement restrictions on the local populace. The tank's "intimidation factor" should be considered. Normally, the tank unit is positioned as far away as possible from those who are benefiting from the humanitarian effort.

8204. Convoy Security Operations.

This mission requires the tank unit to provide convoy security and close-in protection from direct fire while on the move. Tank units are well suited for this role because of their mobility, firepower, and armor protection. Depending on a variety of factors (size of the convoy, escort assets available, and METT-T), convoy escort missions are normally conducted by Marine tank units at the platoon level, either independently or as part of a larger unit's convoy security mission. Therefore, this section will be discussed at the platoon level for the aforementioned reason and for sake of simplicity.

Command & Control. The relationship between the tank platoon and the convoy commander must provide for unity of command. In most cases, the tank unit commander may serve as the security element or support the security force commander.

Tactical disposition. During escort missions, the tank unit leader supports the convoy commander by positioning his tanks to provide security in all directions and throughout the length of the convoy. They can adjust the disposition of the tank unit, either as a unit or dispersed, to fit the security requirements of each particular situation. As noted, several factors, including convoy size and METT-T, affect this disposition. Perhaps the key consideration is whether the platoon is operating as part of larger escort force or is executing the escort mission independently.

Escort Missions. When the unit is deployed during an escort operation, it can provide forward, flank, rear or close-in security. In such situations, it executes tactical movement based on the factors of METT-T. Figures 8-1 and 8-2 show the platoon using various formations while performing escort duties as a unit. These formations can also be used by the platoon while part of a Large Scale Escort Mission.

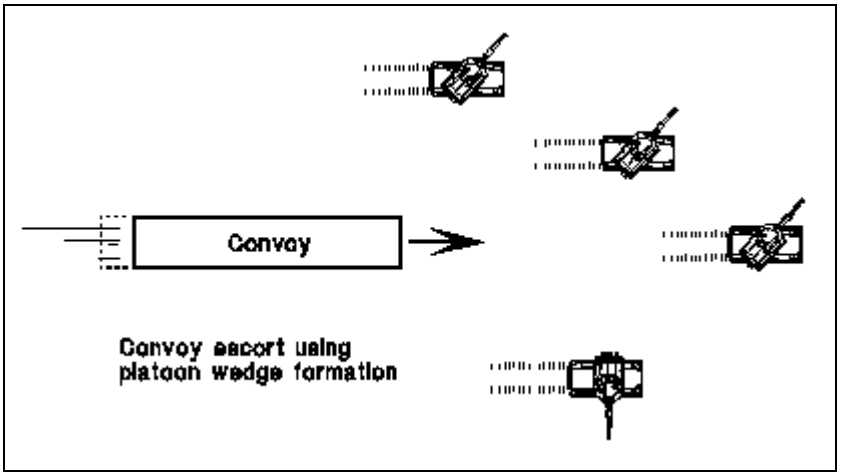


Figure 8-1. Platoon performing forward security for a convoy.

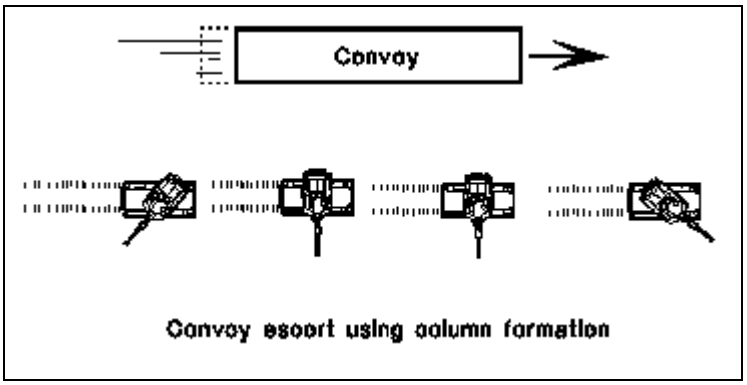


Figure 8-2. Platoon performing flank security for a convoy.

Large-scale Escort Missions. When sufficient escort assets are available, the convoy commander will usually organize the convoy into three distinct elements: advance guard, close-in protective group, and rear guard.

The tank unit is normally best employed as an element of the close-in protective group. This group provides immediate, close-in protection for the main body of the vehicle column with escort vehicles positioned either within the column or on the flanks. The convoy commander's vehicle is located within this group.

The advance guard reconnoiters and proofs the convoy route. It searches for signs of enemy activity, such as ambushes and obstacles. Within its capabilities, it attempts to clear the route and provides the convoy commander with early warning before the arrival of the vehicle column. In some cases, a tank section or the entire platoon may be designated as part of the advance guard. The platoon commander may also be required to attach a mine plow or mine roller to this element. The rear guard follows the convoy. It provides security in the area behind the main body of the vehicle column, often moving with medical and recovery assets. Again, a tank section, or the entire tank platoon may be part of this element.

NOTE: The convoy commander may also designate the tank as part of a reserve (quick reaction) force for additional firepower in the event of enemy contact. The reserve will either move with the convoy or be located at a staging area close enough to provide immediate interdiction against the enemy.

8205. Mounted Patrols.

A tank unit can be given a patrol mission to proof a route to detect and neutralize mines. Based on METT-T factors, the unit may use tactical movement techniques to provide overwatch for the proofing vehicle, which can be a tank (equipped with a mine roller, if available) or an engineer vehicle. If mines are detected, the unit conducts breach force operations within its capability; whenever possible, the lead tank should be equipped with a mine plow and a breaching kit containing wire and bolt cutters, grappling hooks, and demolitions.

The tank unit when patrolling an urban areas or close terrain, normally overwatches and/or follows in support of dismounted infantry (see Figures 7-4A and 7-4B). Procedures for operating with infantry are discussed in Appendix B.

8206. Checkpoints.

A tank unit can overwatch an infantry or military police traffic control point. Additionally, the overwatch element must ensure it coordinates for it’s own local security; it usually does this by coordinating with dismounted infantry for OPs and dismounted patrols. For more information on overwatch and occupation of a defensive position see Chapter 4.

The tank unit (supported by infantry) can be employed to occupy a perimeter defense to protect traffic and facilitate movement through a choke point along the MSR. Infantry is

normally integrated into the perimeter defense to augment the tank unit's firepower and to provide security by means of dismounted patrols and OPs

The tank unit can be employed to overwatch a blockade or roadblock. The blockade or roadblock can either be a manned position or a reinforcing obstacle covered by fires only. It coordinates with dismounted infantry for local security (OPs and dismounted patrols). Positions are improved using procedures for deliberate occupation of a battle position (see Chapter 4).

8207. Reaction Force.

a. Tactical Recovery of Aircraft and Personnel. Tank units can be employed as an element of the MAGTF reserve (sometimes referred to as the quick reaction force) during TRAP missions. Typical missions include: reinforcement and relief of encircled friendly forces that are conducting the TRAP mission or securing an objective in an operation to rescue a downed aircraft or stranded vehicle. In all these scenarios, the tank unit conducts a movement to contact and if required actions on contact. For more information on these operations, refer to Chapter 3, Offensive Operations.

Tank units can be employed with infantry to conduct a cordon and search mission. During the cordon and search, the tank unit normally occupies overwatch and/or hasty defensive positions to isolate a search area. Close coordination and communication with the dismounted elements conducting the search is critical. Dismounted forces are also employed in OPs and patrols to maintain surveillance of dead space and gaps in the cordoned area. The tank unit must be prepared to take immediate action if the search team or OPs identify enemy elements. Enemy contact may require the unit to execute tactical maneuver and deliver fires directed by the dismounted elements. See Appendix B.

Chapter 9

Military Operations on Urbanized Terrain

Section 1. Tanks in Military Operations on Urbanized Terrain

The role of tanks in urban warfare can be significant. Of 22 urban battles studied in MCWP 3-35.3, MOUT, tanks participated in 21. In three-fourths of these battles, organic tank support was a central element of task organized special assault teams. Overall, special assault units supported by tanks were more successful than any other task organization.

The use of tanks to the attacker inside a city has been effective only when infantry protected them. Tanks in support of infantry act as an "assault gun" that delivers concentrated, sustained fires to reduce enemy held strongpoints. The U.S. experience in Hue demonstrated that tanks, when employed as part of a combined arms team, could be employed successfully in combat inside a city. The Marines' most effective weapons during the battle were the M48A1 Patton tank and the M-50 Ontos. Both worked in concert with the infantry. The M48A1, with its 90-mm main gun, was used extensively to reduce fortified positions. The Ontos, an armor-protected tracked vehicle mounting six 106-mm recoilless rifles, was highly effective against concrete and steel structures. The munitions of these armored systems provided breaches through walls and into buildings that the infantry could exploit.

In contrast, during the Suez City battle, Israeli armored forces attacked on "armor thrust avenues" into the city, outpacing their armored personnel carrier (APC) mounted paratroop/infantry support. The Egyptian defenders lacked organic artillery (except limited antiaircraft artillery (AAA) and mortars) and had no air support and virtually no armor support. The Egyptians prepared "kill zones" on the principal avenues of approach. As the lead IDF armor battalion entered the second of the three road intersection objectives, the Egyptians engaged with Sagger missiles, RPGs, ZSU-23 antiaircraft guns, antitank grenades thrown from balconies, and small arms. All of the tank commanders in the lead battalion were killed or wounded. Disabled vehicles blocked the road. Vehicle mobility was greatly reduced by narrow side streets and IDF forces became trapped and were destroyed. The lack of a cohesive infantry/armor team proved disastrous to the attacking Israeli armor battalions.

Section 2. Marine Armor in MOUT

The powerful, high-velocity cannon mounted on the M1A1 tank provides Marines with a key requirement for victory in urban areas—heavy direct-fire support. Although the infantry assumes the lead role during combat in urban areas, tanks and infantry work as a close team. Tanks move down streets after the infantry has cleared them of any suspected ATGM positions. Tanks, in turn, support the infantry with fires. The tank is one of the most effective weapons for heavy fire against structures. The primary role of the tank cannon during combat in urban areas is to provide heavy direct fire against buildings and strongpoints that are identified as targets by the infantry. The quick, accurate and devastating effects of the 120-mm tank cannon are major assets to Marines fighting in urban areas.

9201. Marine Tank Unit

The paradigm that has driven the use of tanks as the primary fire and maneuver force on the armor heavy battlefield has not changed. What has changed is the role the main battle tank plays in the lower end of the range of military operations. In that environment, the tank clearly is in a support role. If properly integrated in the scheme of maneuver, the tank is a great combat multiplier and can provide a tremendous advantage to combined arms forces engaged in urban combat.

The tank provides an all-weather direct-fire platform. It has the ability to utilize its thermal viewer capability to engage targets in low-illumination and limited-visibility conditions. Precision engagement will consist of a system that enables our forces to locate the objective or target with enhanced optics, engage with desired effect and retain the flexibility to re-engage when required. Even from extended ranges, precision engagement capability of tank units provides a degree of force protection for the GCE and can limit collateral damage to noncombatants and local infrastructure. The wide arrays of responsive and accurate weapons on the tank provide the commander with flexible options.

The very presence of tanks is a physical and psychological deterrent to any adversary and sends a strong signal of our national resolve when deployed into theater.

When the mechanized Marine force is employed in urban areas that are very restricted, tank units may have to be task organized down to sections. Marine tank units support Marine infantry in urban areas by:

- Providing overwhelming firepower and shock effect.
- Isolating objectives with direct fire to prevent enemy withdrawal, reinforcement, or counterattack.
- Neutralizing or suppressing enemy positions with smoke, high explosive (HE), and automatic weapon fire as infantry closes with and destroys the enemy.

- Assisting opposed entry of infantry into buildings when debris, obstacles, or enemy fire blocks doorways.
- Smashing through street barricades or reducing barricades by fires.
- Using fires to reduce enemy strongpoints in buildings.
- Holding cleared portions of the objective by covering avenues of approach.
- Attacking by fire any other targets designated by the infantry.
- Establishing roadblocks.
- Suppressing identified sniper positions.

9202. Marine Infantry.

Marine infantry facilitate tank employment in urban terrain by:

- Locating targets for engagement by the tank.
- Suppressing and destroying antiarmor weapons with mortars, automatic weapons, and grenades.
- Assaulting positions and clearing buildings.
- Providing local security for tanks at night or during other periods of reduced visibility.

9203. Planning

A major characteristic of combat in an urban environment is compression. Compared to combat in open terrain, urban operations are compressed in space and time. This compression limits observation distances, engagement ranges, weapons effectiveness, and mobility. Time is also compressed: time to maneuver, time to generate more fires, time to anticipate enemy actions, plan, conduct operations and if necessary, respond to enemy actions. These factors tend to force extremely close combat with troops fighting from building to building and from room to room. Command and control is difficult, because small unit leaders cannot see their troops and radio communication is subject to interference caused by the presence of structures. Historically, urban combat has called for a high degree of initiative by small unit leaders directing the employment of task organized special assault teams.

When tanks are to be task organized for MOUT, it is vital that tank unit representatives be integrated into the planning process as early as possible. Familiarity with unit SOPs must be achieved down to infantry squad and tank section levels for effective tank-infantry employment in MOUT operations. Additionally, the tank unit leader must keep the infantry commander informed regarding his units, supply, crew, and weapons status, and any special equipment available (such as mine plow and rollers). These capabilities/limitations must be factored into planning.

When planning a mission, commanders must consider the capabilities, limitations and likely courses of action available to the enemy. The commander and staff must consider the strength, composition, disposition, and activities of the enemy forces. Enemy tactics may range from ambushes, snipers, and urban terrorism to large-scale conventional

operations. The tactics and techniques utilized in execution against either of these types of forces should differ. The addition of armor creates other planning considerations for the infantry commander. He must plan and allow time for:

- Full dress rehearsals.
- Standardizing reporting formats.
- Establishing Standard Operating Procedures (SOPs).
- Determining the maintenance and logistical support requirements for the tanks.
- Considering battle damage assessment and recovery, resupply and casualty evacuation.

9204. Employment Considerations

The following are some techniques and concerns Marine infantry and/or tank commanders should consider when employing tanks in urban terrain:

- Tank maingun fire is an effective method for eliminating a sniper in a building or creating a psychological effect that destroys the enemy's will to continue.
- Streets and alleys constitute ready-made fire lanes and firing zones. They can greatly restrict and canalize vehicular traffic.
- Tanks should be employed by section. All fundamental fire and movement techniques are conducted at the section level, so tanks should never be employed individually. In extreme cases, tanks can work separately, but this is not recommended.
- Typically, a tank and an infantry squad will work in intimate support of each other. The infantry furnish local security and designates targets for the tank.
- SINCGARS radios are utilized for inter-vehicular communications and should be the primary means of communications between the infantryman and the vehicle commander. Otherwise a hastily rigged external TA-1 phone or hand and arm signals can be used.
- The tank should use HE ammunition to create holes in the walls of buildings so the infantry can enter.
- The tank should also use HE ammunition against barricades. HE rounds can be used to demolish towers, steeples, chimneys, and other tall structures likely to contain enemy artillery observers. This technique is dependent on the established rules of engagement.
- Tanks should avoid stopping or moving slowly near non-secure buildings.
- Tanks should mount the fording kit elbow exhaust plenum pipe attachment or the heat deflector to allow Marine infantry to safely approach the rear of the M1A1 tank.
- Units should check all bridges and overpasses for mines and should determine their weight-carrying capacity.
- Tanks should stay near buildings held by friendly troops. Crewmembers should watch for signals from the infantry inside the buildings on their flanks.
- Tank crewmembers should keep their personal weapons ready for close-in combat.

- When possible, tanks should be used to destroy enemy strongpoints with maingun fire. One technique is to fire armor-piercing ammunition to penetrate the reinforced wall of a building followed by high-explosive antitank (HEAT) rounds to kill or neutralize the enemy. Tanks should fire first into the ground floor to drive the enemy into the basement, where infantry can attack them, or to higher floors, where the wing tank can destroy them.
- Tanks are sometimes at a disadvantage because their main guns cannot depress or elevate sufficiently to fire into basements and upper floors at close range (see Figure 9-1).

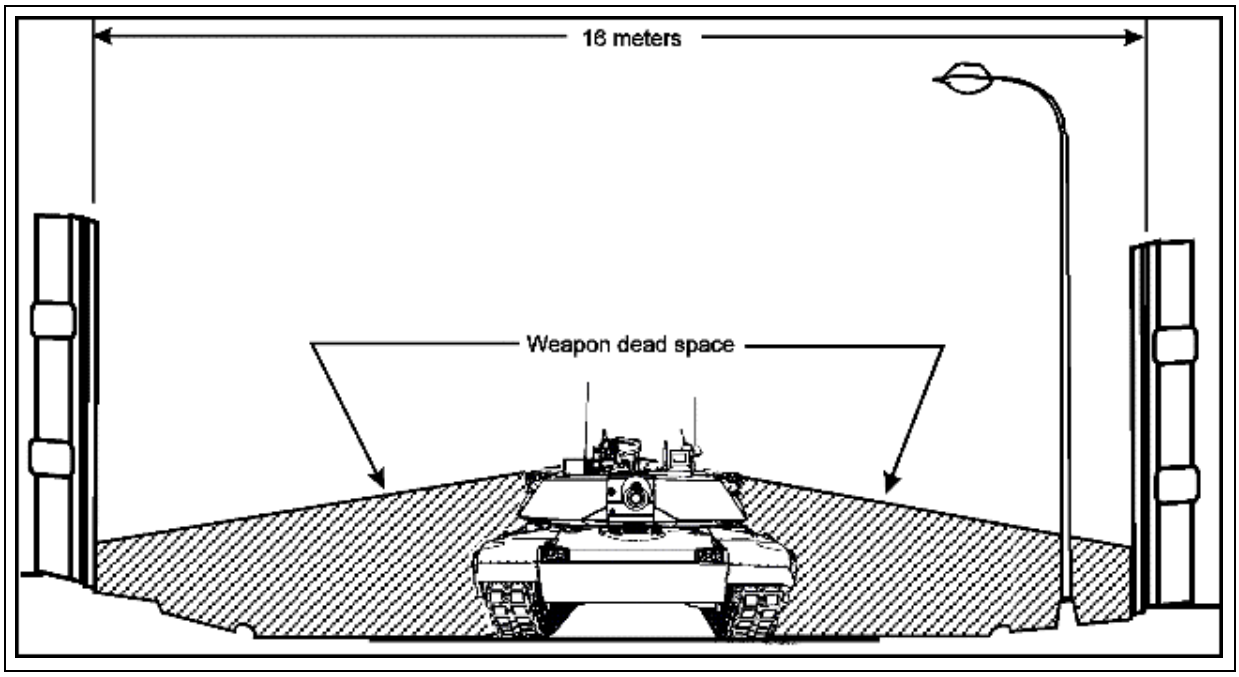


Figure 9-1. Tank Cannon Dead Space at Street Level

9205. Control Measures.

Combat in urban areas requires control measures with which all troops must be familiar. These include the following:

- *Boundaries.* In dense urban areas, units should place boundaries along one side of the street to provide easy and definite identification. In areas where observation and movement are less restricted, they may place boundaries in alleys or within blocks so that one unit's zone includes both sides of the street.

- *Objectives.* Objectives are specific and limited. Choosing major intersections, principal buildings, or other readily identifiable physical features improves control. Numbering buildings along the route of attack simplifies the assignment. As the unit moves forward through an area, unit commanders should designate the near side of

the street as the objective. If they choose the far side of the street, the unit will have to secure buildings on both sides of the street to take the objective. Units must promptly report seizure of objectives.

- *Frontages, formations, and zones of action.* Attacking battalions normally operate within relatively narrow zones of action. The frontages depend on the enemy's strength, the size of the buildings, and the anticipated resistance. Normally, a battalion-sized unit has a frontage of three to six blocks and attacking companies of one to two blocks. Frontages and zones of action influence tank employment. The tanks should be well forward to add momentum to the attack, exploit success, repel counterattacks, and protect the flanks and rear against enemy action.

- *Phase lines (PLs).* PLs increase control by regulating the advance of attacking forces. PLs are less restrictive than objectives. They encourage the rapid exploitation of success without halting. Principal streets, rivers, and trolley or railroad lines make good PLs.

- *Checkpoints and contact points.* Street corners, buildings, railway crossings, bridges, and easily identifiable features can be checkpoints or contact points. They improve the reporting of locations. The commander can use them as specific points where he desires units to make physical contact.

Section 3. Offensive MOUT Operations

Because of the nature of the terrain, offensive operations in urban areas are normally conducted primarily by dismounted infantry. Tanks should be employed as much as possible in close support of dismounted teams to secure locations and provide direct fire support.

9301. Attacking in Urban Areas.

A detailed study of the city and the enemy's dispositions in and around it forms the basis for planning the attack and seizure of an urban area. Planning may include tanks for both maneuver and fire support. The attacking force is normally separated into two forces--the enveloping force (tank heavy) and the direct assault force (infantry heavy). Follow the procedures and considerations listed below when attacking an urban area:

- Dissipate the enemy's strength by causing him to react to demonstrations, feints, or ruses.
- Concentrate overwhelming combat power to force a quick and violent disruption of the defenses, envelop the urban area, and move rapidly to the enemy's rear.
- When possible, reduce strongpoints with fires only, secure them with follow-on forces, and maintain the momentum of the attack
- Cut lines of communication and defeat the enemy through isolation.

- Attack at night to gain surprise or to take objectives whose assault during daylight would be too costly. An attack at night will take advantage of the tank's thermal sight capability.
- Once momentum has been gained, attack continuously until defenses have been splintered.

Obliquity. The tank cannon produces its best urban target effects when fired perpendicular to the hard surface (zero obliquity). During combat in built-up areas, however, finding a covered firing position that permits low-obliquity firing is unlikely. Most shots strike the target at an angle that would normally reduce penetration. With tank cannon APFSDS rounds, obliquity angles of up to 25 degrees have little effect, but angles greater than 45 degrees greatly reduce penetration

Ammunition. Armor-piercing, fin-stabilized, discarding sabot (APFSDS) rounds are the most commonly carried tank ammunition. These rounds work best against armored vehicles. However, the 120-mm cannon also fires an effective high-explosive, antitank multipurpose (HEAT-MP) round. Tank units conducting MOUT should carry a HEAT/MPAT heavy mix.

Characteristics. The 120-mm tank cannon has two specific characteristics that affect its employment in built-up areas: limited elevation and depression and short arming ranges. In addition, the tank has another characteristic that is not involved with its cannon but affects Marines working with and around the tank—extremely hot turbine exhaust. Tanks should mount the fording kit exhaust plenum pipe attachment or the heat deflector to allow Marine infantry to safely approach the rear of the M1A1 tank.

- The M1A1 tank can elevate its cannon 20 degrees and depress it 10 degrees. The lower depression limit creates a 35-foot (10.8-meter) dead space around a tank. On a street 16 meters wide, this dead space extends to the buildings on each side (Figure 9-1). Similarly, there is a zone overhead in which the tank cannot fire (Figure 9-2). This dead space offers ideal locations for short-range antiarmor weapons and allows hidden enemy gunners to fire at the tank when the tank cannot fire back. It also exposes the tank’s most vulnerable areas: the flanks, rear, and top. Infantry must move ahead, alongside, and to the rear of tanks to provide close protection. Protection from small-arms fire and fragments is provided by the tank’s bulk and armor. The M1A1 tank also has a blind spot caused by the zero-degree depression available over part of the back deck. To engage any target in this area, the tank must pivot to convert the rear target to a flank target.

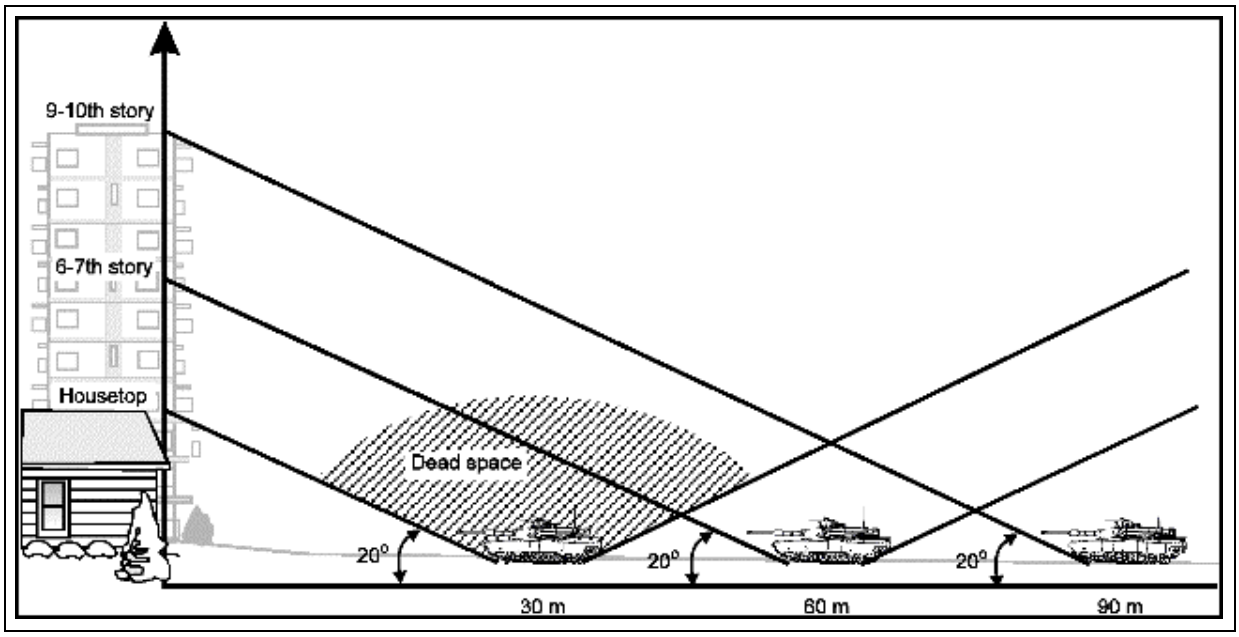


Figure 9-2. Tank Cannon Dead Space Above Street Level

- The 120-mm MPAT round arms at about 60 feet. This arming distance allows the tank to engage targets from short ranges. The armor of the tank protects the crew from both the blowback effects of the round and enemy return fire. The APFSDS round does not need to arm and can, therefore, be fired at almost any range. The discarding portions of the round can be lethal to exposed infantry forward of the tank.

- *Target Effects.* HEAT rounds are most effective against masonry walls. The APFSDS round can penetrate deeply into a structure but does not create as large a hole or displace as much spall behind the target. In contrast to lighter HEAT rounds, tank HEAT rounds are large enough to displace enough spall to inflict casualties inside a building. One HEAT round normally creates a breach hole in all but the thickest masonry construction—a single round demolishes brick veneer and wood-framed constructions. Even the 120-mm HEAT round cannot cut all of the reinforcing rods, which are usually left in place, often hindering entry through the breach hole (Figure 9-3). Both HEAT and APFSDS rounds are effective against all field fortifications. Only large earth berms and heavy mass-construction buildings can provide protection against tank fire.

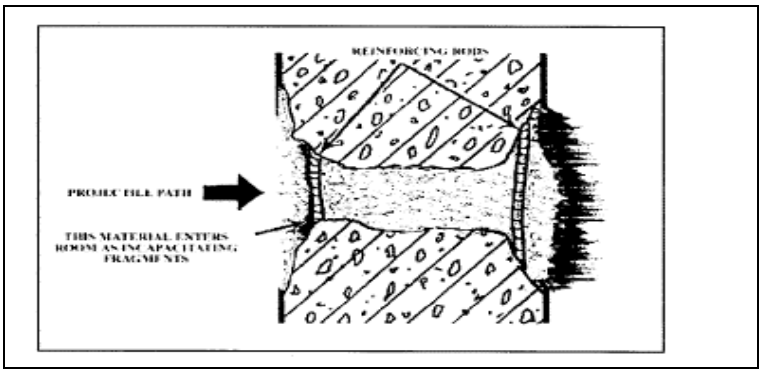


Figure 9-3. Tank HEAT Round Effects on Reinforced Concrete Walls

(1) Tanks need infantry to provide security in built-up areas and to designate targets. Against targets protected by structures, tanks should be escorted forward to the most covered location that provides a clear shot. On-the-spot instructions by infantry commanders ensure that the tank's fire is accurate and its exposure is limited. The tank commander may have to halt in a covered position, dismount, and reconnoiter his route forward into a firing position.

(2) When the tank main gun fires, it creates a large fireball and smoke cloud. In the confines of a built-up area, dirt and masonry dust are also picked up and added to this cloud. The target is further obscured by the smoke and dust of the explosion. Depending on the local conditions, this obscuration could last as long as two or three minutes. Marines can use this period to reposition or advance unseen by the enemy.

(3) A tank cannon creates an overpressure and noise hazard to exposed Marines. All dismounted Marines working near tanks should wear Kevlar helmets and protective vests, as well as ballistic eye protection. If possible, they should also wear earplugs and avoid the tank's frontal 60-degree arc during firing.

WARNING

The overpressure from the tank 120-mm cannon can kill a Marine within a 90-degree arc extending from the muzzle of the gun tube out to 200 meters. From 200 to 1,000 meters along the line of fire, on a frontage of about 400 meters, dismounted Marines must be aware of the danger from discarding sabot petals, which can kill or seriously injure personnel. Personnel outside the tank should remain at least 50 meters from the tank in all directions as they may receive damaging effects from firing noise and overpressure. Personnel must also wear hearing protection when operating within 704 meters of a tank that is firing its main gun.

(4) Tanks are equipped with powerful thermal sights that can be used to detect enemy personnel and weapons that are hidden in shadows and behind openings. Dust, fires, and thick smoke significantly degrade these sights.

(5) Tanks have turret-mounted grenade launchers that project screening smoke grenades. The grenades use a bursting charge and burning red phosphorous particles to create this screen. Burning particles can easily start uncontrolled fires and are hazardous

to dismounted Marines near the tank. The tank commander and the infantry small-unit leader must coordinate when and under what conditions these launchers can be used. Grenade launchers are a useful feature for protecting the tank but can cause significant problems if unwisely used.

(6) The tank's size and armor can provide dismounted Marines with cover from direct-fire weapons and fragments. With coordination, tanks can provide moving cover for Marines as they advance across small open areas. However, enemy fire that strikes but does not penetrate a tank is a major threat to nearby Marines. Fragmentation generated by antitank rounds and ricochets off of tank armor have historically been a prime cause of casualties while infantry were working with tanks in built-up areas.

9302. Attack Phases.

An attack of an urban area comprises four phases:

- Reconnoiter the Objective
- Isolate the Objective.
- Secure a foothold.
- Systematic clearance and seizure of objectives.

(1) Reconnoiter the Objective. Intelligence gathering and reconnaissance & surveillance are critical to the planning process. Whenever possible, leaders should make a personal reconnaissance of the objective area to collect first-hand information regarding the area to be attacked. Avenues of approach, observation posts, supply routes, and the emplacement positions of direct- and indirect-fire weapons systems are all examples of information that can be obtained during reconnaissance. Composition and structure of buildings and roadbeds, cover and concealment opportunities, and other information not apparent in a map study may have a significant impact on the plan.

(2) Isolate the Objective. Seizing natural and manmade features that dominate the area can isolate the objective. Isolation may also be accomplished by coordinated use of supporting arms to seal off enemy lines of communication. This phase may be conducted simultaneously with Phase III (securing a foothold). Isolating the objective:

Once the attacker has isolated the city, he can either continue the attack or fix the defender and force him to capitulate. If necessary, the unit then secures positions outside the urban area from which to support entrance into the city itself. The tactics and techniques for this phase of the operation are similar to those used in an attack against an enemy strongpoint.

(3) Secure a Foothold. Once the objective is isolated, a foothold should be secured as soon as possible in order to maintain tempo. Dismounted forces can be employed to attack from any direction. Examples include bypassing strongly defended buildings by going under, over, and around them and by using cellars, sewers, subways, or other

underground passages. The attacking force uses the foothold area to reorganize, regain control, and emplace units to supporting positions. After seizing a foothold, the attacking force continues the attack through the objective area. Normally, the attacking force penetrates the enemy defenses on a narrow front. The assault is supported by all available supporting arms and usually maximizes use of smoke to screen the attacking forces movement.

The commander may employ variations of the column formation. For example, a battalion may use a column, with each of its companies in a line, wedge, or echelon. These formations tend to shorten the length of the column, reducing the time necessary to move into the urban area. The leading tank elements normally use a formation that speeds the delivery of maximum fire on the point of penetration. Air bursting artillery and mortar fires are usually placed over the entry point to prevent the enemy from manning crew-served or individual antitank weapons. The infantry moves as close to the objective as possible. When the infantry attacks a strongly defended area, it provides close-in protection for the tanks. Unit leaders may assign fire teams or squads to work with each tank. If radios are not available, visual signals and TA-1 phones externally rigged to the tank may help maintain direct communication between the rifle squad or fire team leader and the tank commander. The infantry maneuvers to suppress or destroy the enemy. Tanks move forward as soon as possible to support them. Suppressive tank fires can be effectively used to cover the attacking forces exposed flanks. When buildings on the periphery of a town are heavily fortified, the commander may have to employ techniques for the attack of a fortified area.

(4) Seizing the Objective. Once a foothold is seized and consolidated, supporting forces move to the built-up area to support the seizing of the objective area. To maintain tempo, the transition between the phases should be seamless. Once the foothold has been established, forward units continue the attack through the objective area. The attack can vary from a systematic block-by-block, house-to-house reduction of the urban area to a rapid advance with clearance of critical areas and buildings. Clearance and seizure techniques depend on the mission, the size of the town, construction and building arrangement, and the enemy's disposition, strength, and objective. The momentum of the assault is continued until the objective area is cleared or controlled.

When the urban area is small or lightly defended, the attacking force should drive through or into it as rapidly as possible. Marine armor should lead the column in this instance, closely followed and supported by infantry. It will rarely be possible to employ more than two tanks at the head of the column except when advancing on a wide street. Tanks continuously concentrate main gun and automatic weapons fire on windows and the rooftops of buildings (see Figure 9-4). The infantry protects the tank from close-in enemy fire. When required to protect tanks from fire from nearby buildings, an infantry squad moves along each side of the street, keeping abreast of the lead vehicles. Depending on the resistance, the infantry may challenge every doorway or ground floor window by throwing in hand grenades and spraying the interior with small arms fire. Unit leaders will usually assign Marines in each squad to locate and engage targets on the

upper floors and rooftops of the buildings. The infantry may also assist in the removal of obstacles or barriers halting the advance.

When seizing buildings, the tanks support the assault by isolating the building and providing suppression during entry. The tank can also create a hole in a wall of a building with main gunfire to allow the infantry to enter the building through an unexpected entrance. The wall and fortification breaching effects of the 120-mm tank cannon are major assets to Marines fighting in built-up areas.

The assault force should establish limited objectives to ensure that the attacking forces do not get strung out along the axis of advance. Gaps may give the enemy the opportunity to infiltrate along the line of advance or make isolated friendly forces vulnerable to attack.

Figure 9-4. M1A1s advancing with infantry.

Section 4. Defensive MOUT Operations

In urban combat, the defender possesses key advantages over the attacker. The defender can shape the battle space to his advantage by maximizing the natural restrictions and obstacles found in the urban environment. Knowledge of the terrain and time available for preparing defensive positions are advantages, which may enable the defender to successfully resist a numerically superior force. Defensive operations in a built-up area require thorough planning and precise execution based on METT-T. This section examines MOUT considerations that affect the tank unit in the defense.

9401. Defensive Techniques in MOUT.

In the defense, Marine tanks provide the MOUT commander with a mobile force that can respond quickly to enemy threats. They should be located on likely enemy avenues of approach in positions that allow them to take advantage of their long-range fires. Effective positioning allows the commander to employ the armored vehicles in a number of ways, such as the following:

- On the edge of the city in mutually supporting positions.
- On key terrain on the flanks of towns and villages.
- In positions from which they can cover barricades and obstacles by fire.
- As part of the reserve.

The commander has the alternative of employing sections or individual armored vehicles with infantry platoons and squads; this allows the tank take advantage of the close security provided by the infantry.

9402. Fighting Positions.

Fighting positions for tanks are an essential component of a complete and effective defensive plan in built-up areas. Vehicle positions must be selected and developed to afford the best possible cover, concealment, observation, and fields of fire; at the same time, they must not restrict the vehicles' ability to move when necessary. The following considerations apply:

If fields of fire are restricted to the street area, hull-down positions should be used to provide cover and to enable tanks to fire directly down the streets. From these positions, the armored vehicles are protected while retaining their ability to rapidly move to alternate positions. Buildings collapsing from enemy fires are a minimal hazard to the armored vehicles and their crews.

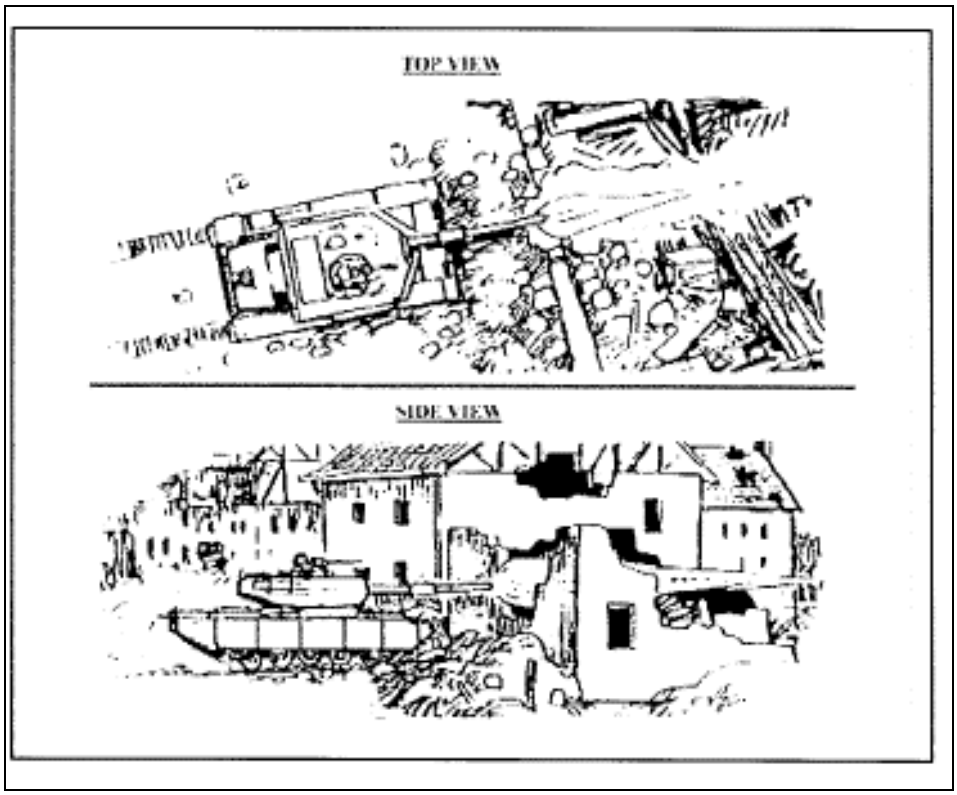


Figure 9-5. Hull-Down Position

- Before moving into position to engage the enemy, a tank can occupy a hide position for cover and concealment. Hide positions for armored vehicles may be located inside buildings or underground garages, adjacent to buildings (using the buildings to mask enemy observation), or in culverts.

- Since the crew will not be able to see the advancing enemy from the hide position, an observer from the vehicle or a nearby infantry unit must be concealed in an adjacent building to alert the crew (see Figure 9-6). When the observer acquires a target, he signals the armored vehicle to move to the firing position and, at the proper time, to fire.

- After firing, the tank moves to an alternate position to avoid compromising its location.

Infantry are usually employed abreast so that they all can fire toward the expected direction of attack. In a company team battle position however, the limited number of available infantrymen may require infantry fighting positions to be interspersed with vehicle positions. In urban areas, rooms within a building may separate small units such as platoons, squads, and fire teams, or they may be positioned in different buildings. Infantry positions must be mutually supporting and allow for overlapping sectors of fire, even when they are in separate buildings or are divided by walls.

The commander's defensive scheme of maneuver in MOUT must always include the employment of a reserve force. This force should be prepared to counterattack to regain key positions, to block enemy penetrations, to protect the flanks of the friendly force, or to provide a base of fire for disengaging elements. For combat in urban areas, the reserve force has these characteristics:

- Normally consists of infantry elements.
- Must be as mobile as possible.
- May be supported by tanks, LAVs and/or AAVs.

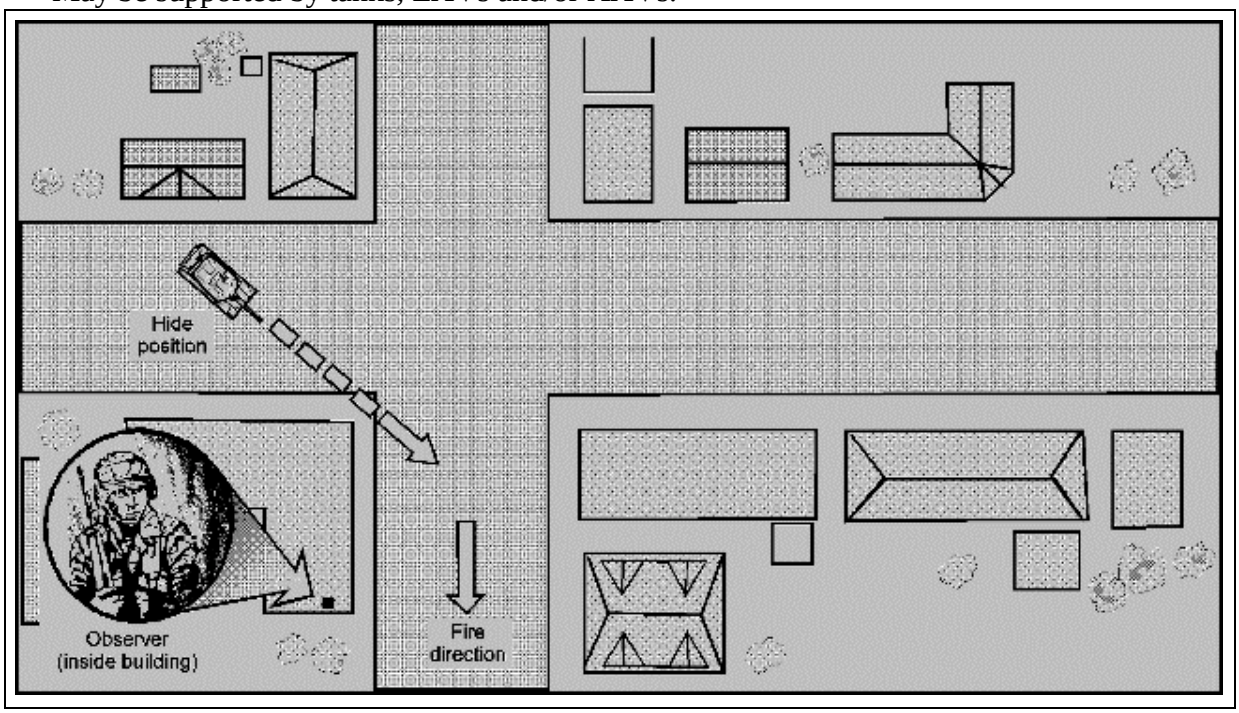


Figure 9-6. Example vehicle hide position in a MOUT environment.

In conclusion: provided below are six major points of consideration for successful integration of tanks in MOUT:

- Situational awareness must exist between the tanker and the infantry. Cross talk between the tankers and the infantry also fosters a good working team. Communications between elements can take many forms: radio communication, use of field phones externally mounted on the right rear fender of the tanks, and visual signals such as hand and arm signals and pyrotechnics.
- Both the infantry and the tankers must exercise tactical patience. The tanks, indoctrinated in moving quickly from one position to another, must remember they are in a support role to the infantry. They also depend on infantrymen for support and protection against close ambush. Separating themselves from the infantry will not only result in needless loss of life and equipment but mission failure. Also, terrain can create mobility restrictions for the tank. Terrain that is easily trafficable by infantrymen may be impassable to a tank.

- Use of tanks does not negate the need to use smoke, obscurants, and indirect fire when moving up to obstacles and support-by fire positions.
- It is essential that tankers attached to the infantry unit be involved in every step of the operations order development, especially rehearsals.
- To be effective, organize the unit as a combined arms team.

Appendix A

Armor Vehicle Characteristics

Section 1. The M1A1 Tank

General:

The M1A1 combat (main battle tank uses high speed, maneuverability, and a variety of weapons to attack and destroy enemy tanks, equipment, and forces. The tank provides protection from enemy weapons.

The M1A1 combat tank consists of the hull and turret assemblies. The turret can rotate a full 360 degrees. The engine will burn a variety of fuels. DF-1, DF-2, JP8 and DF-A are the recommended fuels, but in an emergency, JP4 may be used.

The tank is equipped with a laser rangefinder. The laser rangefinder can range on targets located 200 to 7990 meters from the tank with an accuracy of +/- 10 meters. It is also equipped with a thermal imaging system (TIS). The TIS provides M1A1 fire control system with night vision capability by presenting a thermal scene in the gunner's primary sight (GPS) eyepiece. The TIS picture can be viewed at 3X or 10X magnification. Other relevant capabilities are listed below:

Insert Tank Picture Here

Vehicle Description:

Crew: 4

Armament: Main gun, M256 120mm
Ammunition 120mm combustible cartridge

Machineguns:
Coaxial machinegun, M240 7.62mm
Loader's machinegun, M240 7.62mm
Maximum effective range 900 m (tracer burnout)
Maximum range 3725 m

Commander's machinegun, M2 .50 cal
Maximum effective range 1200-1600 m (tracer burnout)
Maximum range 6700 m

Rifle, M-16 5.56mm

Grenade Launcher	M250

Ammunition quantity:

120mm (for maingun)	40 rounds
7.62mm (for coaxial machinegun, M240	10,000 rounds
7.62mm (for loader's machinegun, M240	1,400 rounds
Caliber .50 (for commander's machinegun)	900 rounds
UKL8 series (smoke grenades for grenade launcher)	24 grenades
5.56m (for rifle, M-16)	210 rounds

Engine: Turbine engine

Transmission: Model X1100-3B

Ranges: Four speeds forward, two reverse, with pivot and neutral selections

Performance:

Forward speed, Maximum (paved level surface)	42 MPH
Reverse speed, Maximum (paved level surface)	25 MPH
Range, (dry level secondary roads without refueling)	273-298 mi.
Vertical obstacle vehicle will climb (forward)	49 in
Maximum width of ditch vehicle will cross (forward)	108 in.

Fording depth:

Without kit	48 in.
With kit	Turret roof

Weight:

Combat loaded:	67.6 tons
Military Load Classification (MLC)	68 tons

Dimensions:

Length (overall, main gun rearward):	356 in.
Length (gun forward):	387 in.
Width:	144 in.
Height (ground to turret roof):	96 in.
Height (maximum overall):	114 in.
Ground clearance (center portion of the hull)	19 in.
Ground clearance (other portion of hull structure)	16.5 in.
Ground pressure:	15.00 psi

Capacities (fuel and oil):

Fuel tanks (total in tank):	504.4 gal
Transmission (refill approximate)	30-35 gal
Transmission (initial fill)	40-45 gal
Engine lubrication oil tank (refill, approximate)	17 qt

For more information concerning the M1A1 tank refer to the TM 08953A-10 manual.

Section 2. M88A1 Recovery Vehicle, Full Tracked: Medium.

General.

The Recovery Vehicle, Full Tracked: Medium, M88A1 is an armored, full track-laying, low
silhouette vehicle. It is used for hoisting, winching, and towing operations for tanks and other vehicles. It is
equipped to assist in repairing disabled vehicles under general field conditions. The vehicle carries a crew of four: commander, operator, mechanic, and rigger.

NOTE: Refer to FM 20-22, Vehicle Recovery Operations for recovery methods using the vehicle
equipment.

Major Vehicle Systems and Assemblies. The M88 Recovery vehicle is a MEF asset that can be used
for a variety of other tasks other than just tank recovery. Some examples include:

The M88A1 is powered by a 12 cylinder, diesel engine. The vehicle transmission is a combined transmission, differential, steering and braking unit. Controls for these components are located in the operator's area.

The suspension system for each side consists of 6 roadwheels with support arms, 3 pairs of track support rollers, 3 shock absorbers, 1 track adjusting link, 2 bumper assemblies, track drive sprockets, hubs, compensating idler 'wheel and track. Primary springing is done by individual torsion bars for each roadwheel arm.

The hull and cab assembly armor protects the crew and equipment against small arms fire, medium artillery shell fragments, and 20-pound anti-tank mines. The vehicle is divided into three sections: crew compartment, hydraulics compartment, and engine compartment.
The vehicle is equipped with a main and an auxiliary hydraulic system used for recovery and maintenance operations. These systems power the spade, boom, main winch, hoist winch, refuel pump, and the hydraulic impact wrench.

The vehicle is also equipped with a main and auxiliary generating system. The primary purpose of the auxiliary system is to charge the vehicle batteries when they are too low to start the main engine.

Description of Major Components

- *Main Winch.* Used to pull disabled vehicles during recovery operations.
- *Hoist Winch.* Used to lift disabled vehicles and heavy loads for recovery and maintenance operations.

- *Caliber .50 Machinegun.* Mounted on cupola to aid crew in case of an enemy attach by personnel, light vehicles and aircraft.
- *Commander's Cupola.* Mounts caliber *.50* machinegun and allows 360 degree travel of gun. It also provides full vision for commander using six prism blocks mounted in the cupola.
- *Communication Components.* Provides equipment for internal and external ground-to-ground communication.
- *Gas-Particulate Filter Unit.* Provides filtered breathing air for CB masks used by operator and crew.
- *Personnel Heater.* Provides heated air for crew compartment during cold weather operation.
- *Auxiliary Power Unit.* Provides electrical power to recharge the batteries. Also provides hydraulic system.
- *Flow Regulator Control.* Controls the operation of the fuel transfer pump and the hydraulic impact wrench.
- *M239 Smoke Grenade Kit.* Provides a self-screening smoke capability for armored vehicles for concealing maneuvers or vehicle troops.
- *Exhaust Smoke Generating System.* Provides a self-screening smoke capability for vehicles with a model AVDS-1790-2DR engine from diesel fuel in the vehicle fuel tanks and is used for concealing maneuvers or vehicle troops.

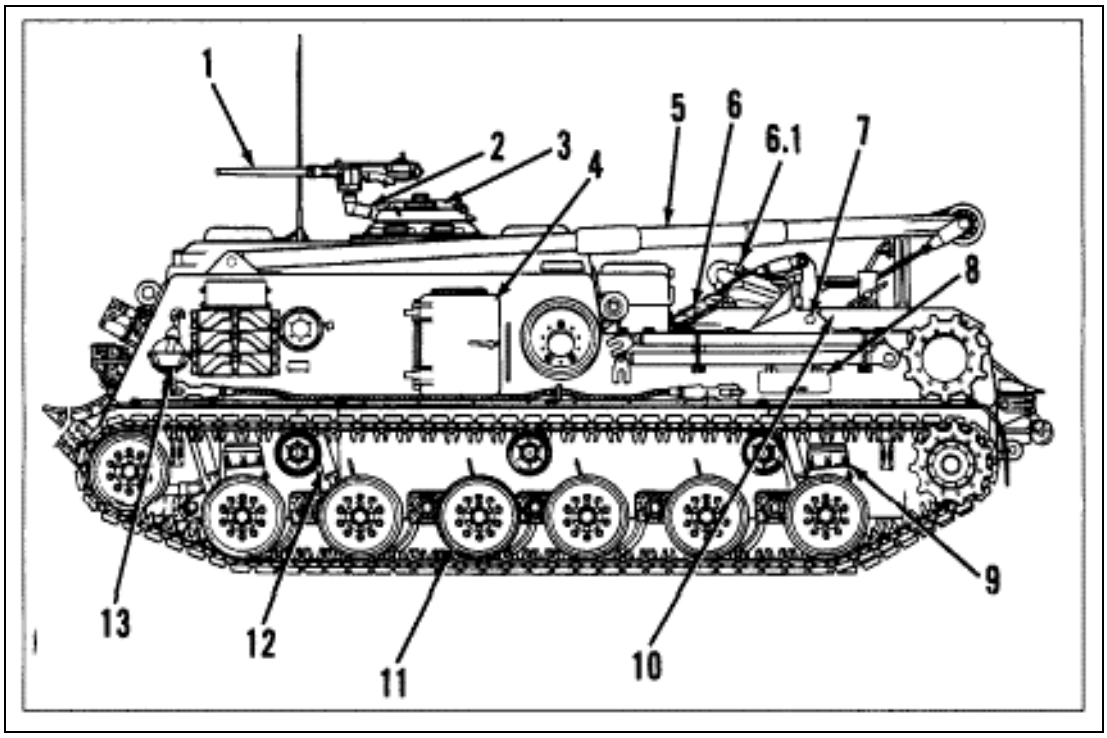
Vehicle Description.

Armament..... one caliber *.50* Browning machinegun, M2, heavy barrel, *flex;*
one machine-gun mount A555ec38 or A88
two *5.56mm,* M16;
ten LAW rockets
Crew.....4
Engine.....Diesel, V 12, 4-cycle, air cooled model AVDS- 1 790-2DR
Weight:
Gross (vehicle fully loaded with crew, passengers and payload).....120,000 lb
Net (vehicle with no crew or payload).....105,000 lb
Cargo (crew and maximum payload).....7,000 lb

Vehicle.
Dimensions:
Length.....27 ft. 1-1/2 in.
Width.....11ft. 3 in.
Height.....10 ft. 3 in.
Ground clearance..... 17 in.
Ground pressure..... 10.9 psi
Fueltanks.....400 gal
Main engine crankcase (refill).....16.5 gal
Transmission.....17 gal

Main winch.....11 gal
Hoist winch.....3 gal
Auxiliary power unit.....3-1/2 qt
Hydraulic system.....95 gal
Mechanical transmission.....1 gal

Performance.
Vehicle speed (max.).....26 mph
Cruising range.....300 miles
Fording depth (max. without kit).....56 in.
Fording depth (max. with kit).....102 in.
Grade ascending ability (max.).....60 percent
Grade descending ability (max.).....60 percent
Vertical obstacle vehicle will climb
(forward direction only).....42 in
Maximum trench crossing width.....8 ft. 7 in.
Turning circle (right or left).....pivot
Boom capacity.....25 tons
Vehicle hoisting capacity:
Spade up.....6 tons
Spade up (with lockout blocks) - 4-part line....20 tons
Spade down - 4-part line.....25 tons
Boom lift height:
8ft. reach.....22.54ft.
4 ft. reach.....25 125 ft
Hoist winch:
Cable size.....*5/8* in. dia, 200 ft. long
Line pull and speed -4-part line:
Bare drum.....50,000 lb at 9 fprn
Full drum.....30,000 lb at 13 fpm
Main winch:
Cable size.....1-1/4 in. dia, 200 ft. long
Radio set and interphone, consisting of:
Radio sets - AN/VRC-44 or AN/VRC-46 or AN/VRC-64
Suppressor - MX-7778A
Intercommunications system - AN/VIX- 1(V)
(4 controls)
Smoke grenade equipment (M239)
Exhaust smoke generating system



M88A1 Side view

1. Caliber 0.50 machine gun
2. Machine gun mount
3. Commander's cupola
4. Personnel door, left side
5. Boom
6. Tarpaulin and 100-ft rope
7. 1.Snatch block, 90-ton
8. Tow bar
9. Left side stowage compartment door
10. Bumper spring (4)
11. Crow bar (2)
12. Roadwheel (12)
13. Shock absorber (6)
14. Snatch block, 10 ton

Section 3. AVLB

The AVLB is primarily employed to cross short gaps, such as narrow streams, antitank ditches, craters, canals, or partially blown bridges. Its span is 18 meters (60 feet) using prepared abutments and 17 meters with unprepared abutments. The capacity of the bridge is one military load class (MLC) 60 vehicle (this is waived for M1-series tanks in combat operations). The AVLB launcher, which requires 10 meters of overhead clearance for transportation and operation, is most visible and vulnerable during launching of the bridge. An experienced crew can launch the bridge in two to five minutes.

The M6OA1 AVLB is divided into two sections - hull and launching mechanism. The hull contains the:

- Crew compartment with all controls for operating the launching mechanism.
- Engine compartment with engine and transmission that supplies power for operating hull and launching mechanism.
- Operator and commander cupolas to enter crew compartment.
- Cupola vision blocks and periscopes for visual operation when openings (hatches) are closed.
- Bridge seat on which bridge rests during transporting. The launcher mechanism contains the:
- Hydraulic system - pump, fluid, cylinders, hoses, and other parts for moving the bridge, outrigger, and tongue during launch and retrieval.
- Outrigger - steadies vehicle during bridge launch and retrieval.
- Tongue - connects vehicle to bridge.

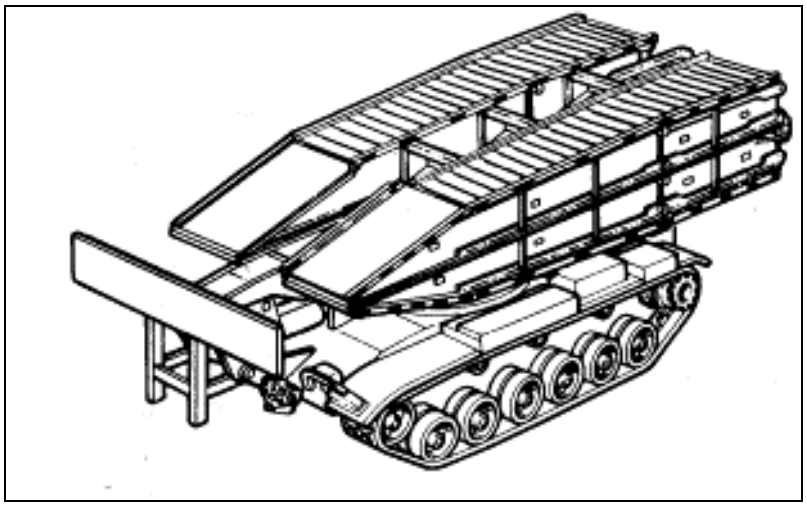
EQUIPMENT CAPABILITIES

- Can be operated in nuclear, biological, or chemical environments.
- Can be operated on rough ground.
- Can be forded in water up to 4 feet deep (1.2 meters) without special equipment.
- Can launch or retrieve bridge on uphill or downhill slope of 15% or side slope of 8%.

EQUIPMENT FEATURES

- Quick launch (2-5 minutes).
- Only two persons needed for launch/retrieval of bridge.
- Heavy armor protection for personnel.
- Provides limited smoke screen from choice of two smoke grenade launchers or engine smoke generator (if equipped).

M60Al Armored Vehicle Launched Bridge (AVLB)



Equipment Description:

Capacities (fuel and oil):
- Fuel tanks (total) 375 gal (1419 litres)
- Hydraulic system w/bridge 135 gal (511 litres)
- w/o bridge 115 gal (435.3 litres)

Controls:
- Brakes hydraulic-mechanical foot pedal
- Steering
  - Type hydraulic mechanical
  - Turning capability 360-degree pivot

Transmission
- Type CD-850-6A, 2 speed forward, 1 reverse

Dimensions (travel position):

Length	(w/o bridge)	28.3 ft (8.64 m)
	(w/bridge)	37.0 ft (11.28 m)
Height	(w/o bridge)	10.0 ft (3.0 m)
	(w/bridge)	12.8 ft (3.9 m)
Width	(w/o bridge)	12.0 ft (3.6 m)
	(w/bridge)	13.2 ft (4 m)
Ground clearance		14 in. (35.6 cm)

Engine:
- Model AVDS-1790-2D or -2DA
- Type v-12, turbo-supercharged
- Governed speed
  - full load. 2400 rpm
  - no load 2650 rpm
  - idle 700 to 750 rpm
- Fuel diesel oil
- Fuel consumption 1.13 gpm (gal per mile) (4.3 Lpm)

Land Performance:
Speeds (maximum)
Low 10 mph (16 kph)
High 30 mph (48 kph)
Reverse 5 mph (8 kph)

Weight:
Vehicle (w/o bridge) 92,200 lb (46.1 tons)
41,859 kg (42 metric tons)
Vehicle (w/bridge) 121,700 lb (61 tons)
55,252 kg (55.3 metric tons)

Ground Pressure:
Vehicle (w/o bridge) 9.0 psi (lb/sq in.) (62.1 kpa)
Vehicle (w/bridge) 12.2 psi (84.12 kpa)
Bridge (see TM 5—5420—203-14) Scissoring type, class 60

Appendix B

Employment with Infantry

Section 1. General

Marine Tank units rarely fight alone. When fighting as part of a MAGTF, tank units are organized with other elements of the MAGTF to achieve the effects of combined arms. Combined arms is the full integration of combat arms in such a way that to counteract one, the enemy must become more vulnerable to another (MCRP 5-12A). MAGTFs accomplish combined arms through tactics and techniques at the lower levels and through task organization at the higher levels. Combined arms integrate the effects of various arms –infantry, tank, artillery, and aviation—to achieve the greatest possible effect against the enemy. The strengths of various arms complement and offset each other. At the same time, the weaknesses and vulnerabilities of each arm are protected and offset by the capabilities of the other.

Mechanized operations are tactical operations designed to maximize the ground mobility, protection, shock action, and firepower of combat vehicles to concentrate combat power rapidly against the enemy. Combat power is generated by the massed employment of tanks and enhancing the mobility of other forces through the use of AAVs and other ground mobility means.

Unrestricted terrain such as desert, plains, and flat countryside are conducive to conduct of mechanized operations characterized by the employment of massed armor formations. In such terrain, infantry supports the forward movement of the tank units by providing local security, retaining key terrain, clearing dug-in enemy positions, and enhancing direct fires with organic small arms and antitank fires.

Restrictive terrain (such as urban areas, forests, and jungles increases the vulnerability of tank units by reducing the speed, mobility, and firepower advantages of a tank. In such terrain, it is more advantageous for tanks to take a supporting role and facilitate the forward movement of the infantry. Tanks provide close-in direct fire support against hard and soft targets that could slow the infantry's advance.

When infantry and tanks move together in any operation, the infantry moves using one of three methods: dismounted, truck-mounted, or AAV-mounted. This appendix examines in detail how the tank unit is employed to support the advance of mounted and dismounted infantry.

Section 2. Task Organization

The Marine Corps is one of the few armed forces in the world that conducts mechanized operations without permanently formed mechanized infantry units. Choosing not to form permanent mechanized infantry units, the Marine Corps instead maintains well-trained general-purpose infantry units capable of executing a myriad of ground combat missions. In Marine mechanized operations, term mechanized infantry refers to a task-organized force of Marine infantry mounted in AAVs. In general, this term is a reference to any

infantry (friendly or enemy) that are riding in APCs or IFVs. In most of the world's land armies, the APC or IFV is organic to infantry units.

Based on the threat or terrain, the MAGTF commander may organize a mechanized force for a specific mission. A Marine mechanized force is a task organized, ground combat force of combined arms built around an infantry or tank unit, and reinforced with substantial assault amphibian assets. A Marine mechanized force is normally supported by air, artillery, light armor, antitank, engineer, reconnaissance, motor transport, and other combat support and combat service support units.

Commanders at each level of command must determine the best organization for combat. Normally, the process of cross attachment does this. Cross-attachment is the exchange of subordinate units between units for a temporary period. For example, a tank battalion detaches a tank company that is subsequently attached to an infantry battalion mechanized in AAVs, and the infantry battalion mechanized in AAVs detaches a company to the tank battalion to create two battalion-sized task forces.

Mechanized forces are task organized into mechanized task forces at the regimental and battalion level and company teams at the company level. Mechanized task forces and teams are described by their mix of tank and mechanized infantry.

- **Tank Heavy Task Force**. A tank-heavy force has more subordinate tank than infantry units. The headquarters of a tank heavy task force is usually that of a tank battalion.

- **Mechanized Heavy Task Force**. A Mech-heavy force has more subordinate infantry units mounted in tracked vehicles than subordinate tank units. The headquarters of a mech-heavy task force is usually that of an infantry battalion or regiment.

- **Balanced Task Force**. A balanced task force is organized with an equal number of subordinate tank and infantry units. The headquarters for a balanced task force can be either that of a tank battalion or infantry battalion/regiment

- **Tank/Infantry Pure Task Force**. A pure unit has either tank or infantry units, but not both.

Company Team. A team organized by the cross attachment of one or more tank platoons and/or mounted or dismounted infantry platoons. Based on METT-T, an infantry or tank battalion commander receiving tank or mechanized infantry companies may tailor the increase the effectiveness of his units by forming company teams. This is done by cross-attaching tank platoons and mechanized infantry platoons. Teams are cross-attached in the same manner as task forces.

Types of Mechanized Company Teams

- Tank Heavy Teams
- Mechanized- Heavy Teams
- Balanced Teams

Note: Graphics to be added later

The company is normally the smallest task organized mechanized element. The tank platoon should normally be the smallest unit that is attached/detached. The tank platoon leader must be trained to interact with controlling headquarters. Logistical support is normally obtained from the infantry battalion S-4. If the platoon's parent company is in the vicinity, he may be able to coordinate some assistance through the parent unit; however, this support may not be available.

Section 3. Coordination

Mechanized operations demand effective coordination between the tank unit and the infantry unit it is supporting. The tank platoon/company commander's responsibility is to have a thorough tactical and technical knowledge of his tank's systems and logistical needs. Based on these factors, he advises the Infantry Unit Commander and/or the Operations Officer (S-3) with respect to tank employment. In mechanized operations. These plans should maximize use of the tank's capabilities for lethal firepower, enhanced target acquisition (including thermal sights), and effective armor protection. In addition to understanding the capabilities and limitations of his tanks, the tank unit leader must appreciate the disparate capabilities of the mechanized force. Infantry mounted in AAVs has less firepower, armor protection and normally moves slower than tanks over certain types of terrain. For example, he must remember that sabot ammunition cannot be fired over the heads or flanks of unprotected infantry because of the danger created by the discarding sabot petals and the concussion of the main gun.

Habitual assignment is the routine attachment of one unit to another. Although a policy of habitual assignment between tank and infantry units is not always practical, it is highly desirable for the following reasons:

- Attached units become familiar with unit SOPs of the units to which they are attached.
- Teamwork is built between units, which is key to achieving unity of effort.
- Unit commanders joining an attached unit become familiar with that particular unit's capabilities.

Section 4. Offensive Employment of a Mechanized Force

a. Mutual Support. To best exploit the mechanized force's offensive capabilities, tanks and mechanized infantry must work together in pursuit of a common goal. Each element of the mechanized force provides a degree of mutual support to the other element.

Tanks support mechanized infantry by:

- Providing mobile protected firepower.
- Neutralizing or destroying hostile weapons by fire and movement.
- Clearing paths for dismounted infantry through obstacles.
- Neutralizing fortified positions with direct fire.
- Supporting dismounted infantry by direct fire.
- Assisting in the consolidation of the objective

Mechanized Infantry assists tanks and AAVs by:

- Breaching or removing antiarmor obstacles.
- Assisting in the neutralization or destruction of enemy antiarmor weapons
- Designating targets for tanks and AAVs.
- Protecting tanks and AAVs from enemy infantry and antiarmor weapons.
- Clearing bridges and fording areas.
- Clearing restrictive terrain such as urban, swamp, or woodland areas.
- Conducting dismounted security patrols

Based on METT-T, the mechanized force's combination of tanks, AAVs, and infantry provides the commander with several options:

- Mounted maneuver with tanks.
- Mounted maneuver with AAVs.
- Mounted maneuver with tanks and AAVs.
- Dismounted maneuver alone.
- Dismounted maneuver combined with any of the mounted maneuver options.

b. <u>General Employment Methods</u>. There are two general methods to employ tanks and mechanized infantry together in an attack

(1) *Tank and Mechanized Infantry (mounted in AAVs or dismounted) attack together*.

(2) *Tanks and AAVs support by fire only*.

Based on METT-T, a combination of the two methods may be employed called a multi-axis attack.

(**1) <u>*Tanks and Mechanized Infantry Attack Together*</u>**. This method allows tanks and mechanized infantry to advance together within mutually supporting distances of each other. Tanks normally lead the formation. Ideally, the infantry remains mounted in AAVs to close with the enemy. However, the infantry should only remain mounted in AAVs when enemy presents a low anti-armor threat.

Advantages of Tanks and Infantry attacking together include:

- Fully exploits the mobility, speed, armor protected firepower, and shock action of the mechanized force.
- Reduces enemy reaction time.
- Disorganizes the enemy's defense, since his positions have normally been breached before the infantry dismounts.
- Conserves the energy of the mechanized infantry since they are carried by AAVs to dismount points short of, on, or behind the objective.
- May reduce the amount of time that the infantry is exposed to enemy fires.

Disadvantages include:

- Greater potential for casualties among elements of the mechanized force if enemy antiarmor fires cannot be bypassed or effectively reduced by suppressive fires. **Lightly armor protected AAVs are vulnerable to antiarmor weapons, and may be destroyed if employed like a tank.** AAV armor can provide protection against hand grenades, shell fragments, and some small arms fire. However, even when Enhanced Applique Armor Kits (EAAK) are installed, the AAV can be vulnerable to the fires of tank and antitank guns, ATGMs, and rockets.
- The entire mechanized force can become vulnerable to enemy fires if obstacles are not breached quickly or bypassed.

c. Mechanized Movement. Tanks normally lead the mechanized formation due to the tanks relative advantage over the AAV in terms of armor protection and main gun firepower. When the situation permits, AAVs can support the mechanized force by following the tanks close enough to fire around the tanks and deliver suppressive fire against enemy infantry and antiarmor weapons encountered on exposed flanks.

The formation is generally based on the following criteria:

- Tanks lead in open areas or when faced with a significant armor threat.
- Mechanized infantry leads mounted only if mechanized infantry is pure with no other antiarmor reinforcements or capabilities.

The desired distance between tanks and AAVs should be determined before starting the attack. This distance is based on METT-T.

d. Maneuver Considerations

The critical decision of whether the infantry attacks mounted or dismounted is based on the following considerations.

TANKS NORMALLY LEAD AND INFANTRY STAYS MOUNTED WHEN:

- Enemy antiarmor fires can be effectively bypassed or suppressed by fire.

- Terrain is relatively open or manmade and natural obstacles can be easily overcome.
- Terrain and Weather affords good trafficability and visibility.

INFANTRY LEADS DISMOUNTED WHEN:

- Terrain and vegetation are restrictive. For example, when terrain and vegetation canalizes movement into likely enemy ambush sites and minefields (e.g. urban areas and woodland terrain).
- Visibility is limited.
- Antiarmor fire can't be bypassed or suppressed by fire.
- Significant obstacles or fortified positions are encountered which may prevent mounted movement and cannot be bypassed.

e. Dismounting Considerations. Once the commander of the mechanized force decides to dismount his infantry, he chooses when and where it dismounts. THE DECISION TO DISMOUNT MUST BE MADE PRIOR TO BEING COMMITTED TO THE FINAL ASSAULT. Commanders normally stay well forward to personally judge the situation and make an appropriate decision of whether or not to change the dismount point. Timing is critical--dismounting too early will slow down the force's momentum and unnecessarily exposes the infantry to hostile fire. Also, it must be recognized that each situation is unique. The commander should also take into account that speed can provide for the security for a mechanized force already committed to the final assault. Ideally, the infantry is dismounted after forward defensive positions have been breached. The following are some dismount point considerations:

- The dismount point should provide good cover and concealment, yet be as near the objective as possible to reduce the amount of time that the dismounted infantry is exposed to fires while closing with the enemy.
- Rapid dismount and good vehicle dispersion reduces the mechanized force's vulnerability to enemy fires. A foundation to rapid dismount and good vehicle dispersion is well-understood SOPs and well-rehearsed battle drills.

f. Types of Dismount. Dismount points may be short of the objective, on the objective, or after passing through the objective.

(1) *Dismount Short of the Objective* is usually not within range of small arms and handheld antiarmor weapons. Tactical conditions may require seeking a dismount point short of the objective. Ideally, the dismount point should be located on easily recognizable terrain that provides cover from enemy direct fires.

Advantages include:

- Dismounted infantry are protected from small arms and observed indirect fires while dismounting.
- Infantry can be oriented as they approach the objective.
- Control can be established in the dismount point.
- Organic and supporting fires can suppress the enemy while the infantry is dismounting.

Disadvantages include:

- Dismounted infantry are exposed longer to enemy small arms and indirect fire as they move forward in the assault.
- Suitable dismount points forward of enemy positions may be targeted by enemy direct and indirect fires.

(2) *Dismount on the objective* is a technique used when the mechanized force has achieved surprise or the enemy antiarmor defense is weak.

The following are advantages:

- Greater speed and shock effect
- Mechanized infantry remains protected by AAV light armor longer from the fires of enemy small arms.
- Supporting fires can continue while the mechanized force approaches it's objective since mounted infantry have greater protection against shell fragments and other small projectiles.

Disadvantages include:

- Difficulty orienting mechanized infantry to specific objectives.
- Difficulty establishing control at the dismount point due to potentially close enemy fires.
- Difficulty in directing supporting fires against enemy positions in close proximity to friendly dismounted infantry.
- Vulnerability of AAVs to short-range antiarmor weapons.
- High volume of suppressive fire is required to support dismounted infantry.

(3) Dismount after Passing through the Objective is employed when a mounted attack is more effective. The capabilities of the enemy antiarmor defense will dictate whether this is feasible.

Advantages include:

- Dismounted infantry fights from and area and direction unexpected from the enemy
- Control is usually more easily established when not on the objective.

- Shock effect on the enemy caused by a mechanized force moving through its position is likely to be considerable.

And disadvantages:

- This method may run afoul of enemy positions in depth.
- Enemy indirect and direct fires might still target suitable dismount points.
- Facing the AAV toward the objective before dismounting is desirable from the viewpoint of limited armored protection and the AA crew employment of the UGWS. However, the act of turning AAVs around in close proximity to enemy fires can make the AAVs more vulnerable to flank shots. Also, the act of turning around AAVs and dismounting infantry may reverse the relative positions of the tanks, AAVs, and infantry. The dismounted infantry may initially mask direct fires from AAVs and tanks until the AAVs and tanks can maneuver around the infantry to new support by fire positions.

g. Base of Fire and Maneuver Elements.

To facilitate fire and maneuver, mechanized forces normally organize into maneuver element(s) and a base of fire element(s). Fires are primarily employed to suppress, neutralize, destroy, and demoralize enemy forces. Maneuver, which is movement supported by fire, brings firepower into positions from which it extends and completes the destruction of the enemy force. The composition of base of fire and maneuver element is determined by the commander's task organization of the mechanized force.

- Base of Fire Element. The base of fire element covers the maneuver element's advance toward the enemy position by engaging all known or suspected targets. Upon opening fire, the base of fire seeks to gain fire superiority over the enemy. Fire superiority is gained by subjecting the enemy to fire of such accuracy and volume that the enemy fire ceases or becomes ineffective.

- Maneuver Element. The mission of the maneuver element is to close with and destroy or capture the enemy. It advances and assaults under covering fire of the base of fire element. The maneuver element uses available cover and concealment to the maximum. Fire superiority is maintained throughout the attack in order to ensure the success of any maneuver.

Attacks consist of both Fire and Maneuver and Fire and Movement.

- Fire and Maneuver. Fire and maneuver is the process of one or more elements establishing a base of fire to engage the enemy, while the other element(s) maneuver to an advantageous position from which to close with and destroy or capture the enemy. Supporting fires may consist of direct, indirect, and aviation delivered fires, which are integrated to achieve the effects of combined arms. Supporting fires should be followed closely by the maneuver element so that the shock effect of fire upon the enemy will not be lost.

- Fire and Movement. Once the maneuver element meets enemy opposition and can no longer advance under the cover of the base of fire, it employs fire and movement to continue its forward movement to a position from which it can assault the enemy position. Fire and movement is primarily used in the assault wherein a unit or element advances by bounds or rushes, with subelements alternatively moving and providing covering fire for other moving subelements. Fire and movement may be done by individuals (personnel or vehicles) or units. Usually, fire and movement is used only when under effective fire from the enemy because it is relatively slow and difficult to control.

There are situations when maneuvering to close range of the enemy is not required. Attack by fire is fires employed to destroy the enemy from a distance. This task is usually given to the supporting element during offensive operations and as a counterattack option for the reserve during defensive operations. An attack by fire is not done in conjunction with a maneuvering force. When assigning this task, the commander of the mechanized force specifies the intent of fires--either to destroy, fix, or suppress.

(2) Tanks and AAVs Support by Fire Only. During planning, the commander of the mechanized force may decide beforehand to attack using the *Tanks and AAVs support by fire only* method. However, if during a mounted assault, surprise antiarmor fire is received in such volume that it cannot be suppressed by all immediately available fire support resources and to continue would result in unacceptable casualties, the infantry is dismounted in defilade locations (if possible). Tanks and AAVs then adopt the *Tanks and AAVs support by fire only* method. For this reason, commanders usually devise plans of action that permit multiple options in execution. For example, a plan which incorporates the *Tanks and Infantry attack together* method should also have the flexibility to incorporate the *Tanks and AAVs support by fire only* method if the situation changes unexpectedly.

The following are examples of situations in which infantry should plan to dismount from the AAVs and use the *Tanks and AAVs support by fire only* method**.**

- Obstacles prevent mounted movement and cannot be quickly breached or bypassed.
- Enemy antiarmor capability poses significant threat to both tanks and AAVs.
- Terrain canalizes mounted movement into likely enemy ambush sites and minefields (e.g. close terrain such as urban or woodland and restrictive terrain such as defiles).
- Visibility is limited

Key considerations are:

- Prior planning to ensure communication can be maintained between the base of fire element(s) and dismounted infantry during the attack. Propositioned retransmission

sites and preplanned radio relay procedures are examples of techniques that can overcome a potential loss of communications during the attack.

- The scheme of maneuver and fire support plan (direct fire, indirect fire, and aviation delivered fires) are developed concurrently and understood by all elements of the mechanized force. Fires are primarily used to engage targets on the objective. Fires are also planned to isolate the objective by engaging targets on adjacent positions or likely enemy avenues of approach. Illumination and obscuration fires should be planned for whether or not the mechanized forces intend to employ these fires in the attack.
- Positive control of supporting fires between the dismounted infantry and base of fire element(s) must be maintained throughout the attack. Radio communication, prearranged visual signals (e.g. pyrotechnic) and/or messengers are used by the infantry to designate targets and coordinate supporting fires. AAVs, tanks, and other available direct fire support assets normally displace forward to new support by fire positions, as they become available.
- A sustained, heavy volume of fires helps the dismounted infantry maintain the momentum of the attack. Suppressive fire helps compensate for the infantry's lack of armor protection and decreased mobility. Long-range accurate fires (e.g. TOWs) are employed against enemy vehicles, protected antitank guns and ATGMs, and other priority hard targets.
- The base of fire element ideally supports from covered and concealed positions. Also, units comprising the base of fire element should regularly reposition themselves to avoid presenting the enemy with easily acquired stationary targets.
- Dismounted infantry should advance on a route that provides cover and concealment and prevents or minimizes masking of the fires of the base of fire element. If available, engineers should accompany the dismounted infantry to breach obstacles and destroy fortified positions.

A disadvantage of the *Tanks and AAVs support by fire only* method is that the infantry loses the mobility, shock action, and close support of the tanks and AAVs. The infantry is also unsupported on the objective itself when the tanks and AAVs shift or cease-fires. Also, Tanks and AAVs are not initially available on the objective to cover the consolidation.

h. Multiaxis Attack.

A combination of the two general methods: *Tanks and Infantry (mounted or dismounted) attacking together* and *Tanks and AAVs supporting by fire only* is an attack made on a *multiaxis*. The adoption of this method is based on METT-T. A primary consideration is the availability of suitable avenues of approach for the tanks, AAVs and the infantry. The multiaxis attack is often used to exploit the amphibious capability of the AAV in crossing streams, rivers, lakes, and marshes. Another application may be when a single avenue of approach is too narrow to accommodate the entire mechanized force. Normally, the tanks follow the more open terrain, while the infantry advance follows an axis offering cover and concealment. Tanks initially support the infantry advance by fire and join the infantry

as soon as practicable. The movement of the tanks is normally timed so that the tanks assault the objective slightly in advance of the infantry to take maximum advantage of their shock effect. The greatest challenge to employing this method is achieving proper timing among the various elements and the coordination of fires during the attack.

i. Assault on the Objective

The purpose of the assault is to place violent and intensive firepower on the objective and move rapidly across it to destroy or capture the enemy as quickly as possible. The term assault refers only to that phase of an attack when the attacking force actually closes with the enemy. Mechanized forces can assault the objective mounted or dismounted.

(1) Mounted Assault. The decision to make a mounted assault is based upon METT-T. A mounted assault is best used when the enemy is occupying hasty fighting position, antiarmor fires can be suppressed, and when the terrain in the vicinity of the objective allows for rapid movement onto and across the objective. The assault must be carried out rapidly. Normally tanks lead followed closely by AAVs. As the assault force approaches the objective, the AAVs should move closer to the tanks for added protection from enemy short-range antiarmor weapons.

Movement across the objective must be fast and continuos. A heavy volume of suppressive fires is maintained to keep enemy soldiers down in their positions. Stabilized turrets allow tanks to continue moving while conducting fire and movement. AAVs normally stay as close to the tanks as possible to provide protection to the flanks and rear of the tank.

Once the tanks and AAVs reach the far side of the objective, they occupy hull-down positions (if possible). From support by fire positions, the tanks and AAVs can engage any retreating enemy forces, continue the attack, or defend against counterattack. If it is necessary to seize the objective, the dismounted infantry is used to clear remaining pockets of enemy resistance and to secure prisoners.

A mechanized pure force assaults mounted without tanks in essentially the same way it assaults with them.

(2) Dismounted Assault.

If the enemy is in well-prepared defensive positions, antiarmor fires can’t be suppressed, or the terrain restricts vehicle movement onto the objective, the assault is normally conducted dismounted. If the attack starts initially mounted, the infantry should be dismounted in a covered and concealed position that is as close to the objective as possible. The base of fire element(s) delivers supporting fires while the dismounted infantry deploys. Dismounted infantry use radio, prearranged visual signals (e.g. pyrotechnic) and/or messengers to direct the base of fire element(s) to shift and cease supporting fires. The dismounted infantry then employ fire and movement through the

objective. Elements of the base of fire element normally displace to subsequent support by fire positions just before their fires are masked by the dismount element. When the tanks and AAVs from the base of fire element rejoin the dismounted infantry, the infantry:

- Suppresses any remaining enemy position as the tanks and AAVs move to the objective.
- Reconnoiters initial support by fire positions and guides tanks and AAVs into the positions when necessary.
- Provides flank and rear security for the AAVs and tanks.

Based on METT-T, the tanks may be employed to continue through the objective, engaging resistance, and pursuing by fire until the infantry has consolidated the position

j. Consolidation and Reorganization.

The mechanized force consolidates and reorganizes as soon as it takes the objective. This is done so the force can either repel a counterattack or continue the attack. The mechanized force consolidates the objective by:

- Occupying the position. Tanks and AAVs are positioned in support by fire positions and assigned sectors of fire while antiarmor weapons are being positioned. Tanks and AAVs are normally positioned on terrain that both provides cover and concealment and permits the vehicles to overwatch the infantry in the event of enemy counterattack. If possible, tanks and AAVs are placed in hull-down positions.
- All elements of the mechanized force establish local security and mutual support between units.
- The dismounted infantry eliminates any remaining pockets of enemy resistance and secures prisoners of war. Dismounted infantry normally designate targets for the overwatching vehicles and use organic and supporting fires to destroy any enemy resistance.
- After consolidation, the infantry either remounts the AAVs to continue the attack or sets up a hasty or deliberate defense.

Reorganization consists of:

- Replacing key leaders who became casualties.
- Redistributing ammunition.
- Arranging for medical evacuation of casualties.
- Safeguarding prisoners of war to collection points or to the rear.

During mechanized operations in unrestricted terrain, tanks should always lead in offensive movement formations. Speed, mobility, firepower, and survivability are otherwise reduced. The survivability, superior target acquisition, range of weapon systems, and lethality of tank units provide the unit commander with time to develop the situation and choose an appropriate course of action.

Section 5. Transporting Infantry

On very rare occasions, the platoon leader may be required to transport infantrymen on his tanks (as illustrated in Figure B-5). This is done only when contact is not expected. If the platoon is moving as part of a larger force and is tasked to provide security, the lead section or element should not carry infantry.

Infantry and tank leaders must observe the following procedures, precautions, and considerations when infantrymen ride on tanks:

- Infantry teams should thoroughly practice mounting and dismounting procedures and actions on contact.
- Passengers must always alert the TC before mounting or dismounting.
- They must follow the commands of the TC.
- Infantry platoons should be broken down into squad-size groups, similar to air assault chalks, with the infantry platoon leader on the tank platoon leader's vehicle and the infantry platoon sergeant on the tank platoon sergeant’s vehicle.
- Platoon leaders, platoon sergeants, and team leaders should position themselves near the TCs hatch, using the external phone (if available) to talk to the TC and relay signals to the unit.
- Tank crewmen must remember that the vehicle cannot return fire effectively with infantry on board.
- Whenever possible, passengers mount and dismount over the left front slope of the vehicle. This ensures that the driver can see the infantrymen and that the infantrymen do not pass in front of the coax machine gun.
- Passengers must always have three points of contact with the vehicle; they must watch for low-hanging objects like tree branches.
- Passengers must ensure that they remain behind the vehicle's smoke grenade launchers. This will automatically keep them clear of all weapon systems.
- All passengers should wear hearing protection.
- Infantrymen should not ride with anything more than their battle gear. Alice-packs should be transported by other means.
- Passengers should be prepared to take the following actions on contact:
- Wait for the vehicle to stop.
- At the TCs command, dismount IMMEDIATELY (one fire team on each side). DO NOT move forward of the turret.
- Move at least 5 meters to the sides of the vehicle. DO NOT move behind or forward of the vehicle.
- If possible, the lead vehicle should not carry infantrymen. Riders restrict turret movement and are more likely to be injured or killed on initial contact.
- Infantrymen should be assigned sectors to scan.

The following cautions should be exercised when infantrymen ride on tanks:

- DO NOT move in front of vehicles unless ordered to do so.
- DO NOT dismount a vehicle unless ordered or given permission to do so.
- DO NOT dangle arms or legs, equipment, or anything else off the side of a vehicle; they could get caught in the tracks, causing death, injury, or damage to the equipment or vehicle.
- DO NOT carry too many riders on the vehicle.
- DO NOT fall asleep when riding.
- DO NOT smoke when mounted on a vehicle.
- DO NOT loiter on vehicles during refueling and rearming.

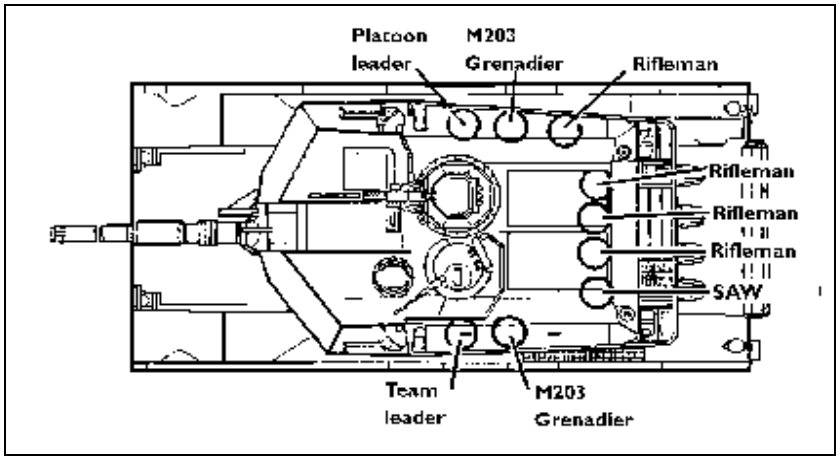


Figure B-5. Sample positions for infantry riding on a tank.

Appendix C

Breaching

Section 1. Breaching Operations

Obstacle breaching is a high-frequency task during offensive operations with the goal of projecting combat power to the far side of an obstacle. Key considerations for the commander include: an understanding of the various types of obstacles and the capabilities and limitations of his available mobility assets.

The breaching fundamentals *are suppress, obscure, secure, reduce, and reconstitute* (SOSRR). These fundamentals are the same for all breaches but may vary in degree based on the situation:

--- Sufficient support elements are employed to *suppress* enemy elements that are overwatching the obstacle.

--- The support force requests smoke to *obscure* breach force operations.

--- The breach force creates and proofs a lane through the obstacle, allowing the assault force to *secure* the far side of the obstacle.

--- Actions taken to further *reduce* and mark obstacles to allow the assault force, main attack force, and any follow-on forces to continue the attack.

--- Reconstitution of personnel and assets to conduct subsequent breaches.

Each of the actions are covered in more detail:

Suppress. Suppression is focusing all available fire on enemy personnel, weapons, or equipment that prevents the enemy from prohibitively interfering with friendly forces during breaching operations. It includes the full range of lethal and non-lethal fires from direct and indirect fire weapons, aviation, and electronic warfare. Suppression helps to isolate the breaching site and fix the enemy in position thus providing protection to forces reducing and maneuvering through the obstacles. Suppression is primarily the responsibility of the Support Force discussed below. However, the Breach Force and the Assault Force also have roles in suppression and will be discussed herein.

Obscure The most effective obstacles are those covered by fire and observation and must be obscured when breaching. To obscure is to hide or make something not clearly seen or easily distinguishable. While the primary obscuration means is smoke, electronic warfare is also a way to obscure breaching activities by providing protection from direction finding and jamming. Obstacle reduction efforts should be hidden from enemy observation as much as possible. Consideration is always given to selecting a breaching site where the terrain provides natural concealment from enemy observation. Obscuring smoke placed on the breaching area and screening smoke placed between the breaching area and the enemy conceals friendly activities, intentions, and obstacle reduction

activities. Smoke should be employed across a wide front in order to deceive the enemy as to the actual breach site(s)

Secure. The breaching site is secured to prevent the enemy from interfering with the obstacle reduction and exploitation of the breach force. A friendly force must control the breaching site, to include enemy listening/observation posts, before it can reduce the obstacle. This is accomplished by suppressive fire and/or physical occupation. Generally, tactical obstacles are secured by fires; protective obstacles are secured by force. The Support Force is responsible for securing the nearside of the obstacle. The Breach Force creates and proofs a lane through the obstacle, allowing the assault force to secure the far side of the obstacle The Breach Force must also contain sufficient assets to provide local security against those forces the Support Force cannot sufficiently engage due to terrain or other cover.

Reduce Reduction is the creation and marking of lanes through a minefield or obstacle to allow passage of the attacking ground force. The number and width of lanes created varies with the situation and type of breaching operation. Lanes must be wide enough to allow a force to rapidly pass through the obstacle and continue the attack. The unit reducing the obstacle marks and reports obstacle and lane locations and conditions to higher headquarters. Lanes are normally handed over to follow- on forces that will further reduce or clear the obstacle when possible and not when under enemy fire.

Reconstitution Upon completion of the breach, the Breaching Task Force will normally have seriously depleted essential Class V and possibly personnel and breaching equipment. The commander is normally faced with two options, reconstitute forces for continued breaching operations or release the elements back to their respective commands. If the commander intends to continue breaching operations, resupply of critical materiel must be conducted and assets redistributed for future breaching operations.

Section 2. Types of Breaching Operations

The following paragraphs cover major types of breaching operations: hasty, deliberate and covert. Amphibious breaches are covered in MCWP 3-17.3, *MAGTF Breaching Operations*. Also included is a discussion of the bypass operation, which the commander must consider as an alternative to conducting an actual breach.

Bypass

When a unit bypasses an obstacle, it physically changes direction, moving along a route that avoids the obstacle. Obstacles should be bypassed whenever possible to maintain the momentum of the operation. Commanders, however, must ensure that conducting the bypass will provide a tactical advantage without exposing the unit to unnecessary danger. Previously unreported obstacles and bypassed enemy forces should be reported to higher headquarters. If possible, they should conduct a reconnaissance to evaluate tactical considerations, including the following:

- The limits of the obstacle.
- Physical aspects of the bypass route, including location, availability of cover and concealment, and key terrain influencing the route.
- Confirmation that the bypass route will take the unit where it needs to go while avoiding possible enemy ambush sites and kill sacks.

Hasty Breach

A hasty breach or in-stride breach is the rapid creation of a route through a minefield, barrier, or fortification by any expedient method. A hasty breach is used against a weak defender, when the enemy situation is vague or changes rapidly, or against very simple obstacles. Little or no time may be available in which to plan or prepare for this type of breach, particularly during the conduct phase of an attack, and well-rehearsed, pre-planned standard battle drills must be used. To maintain momentum and take advantage of the enemy situation, the hasty breach is normally conducted with the resources that are immediately available.

Deliberate Breach

A deliberate or assault breach is used against a strong defense or complex obstacle system. It is similar to a deliberate attack, requiring detailed knowledge of both the defense and the obstacle systems. With this knowledge, forces conducting the deliberate breach can develop detailed plans, task organizes to accomplish the mission, and execute rehearsals. A deliberate breach is further characterized by a buildup of combat power on the near side of obstacles. The term deliberate breach does not apply to the speed or tempo with which the attack is executed. Deliberate breaching operations require significant planning, coordination, and preparation.

In a battalion deliberate breach, the tank company is most likely to be part of the support or assault force; the engineer company, task organized with plow and roller tanks, serves as the breach force. The battalion commander may also form the breach force by task organizing a tank or mounted infantry company with one or more engineer platoons

Clandestine Breaching

Breaches can be conducted either overtly or clandestinely. Overt operations are conducted in the open without concealment. Clandestine operations are conducted in secret or under limited visibility. Thorough reconnaissance and detailed intelligence assist the commander in determining the best location to breach, concealed routes to the obstacle, and the type of breaching equipment and number of personnel required. The covert breach relies on stealth and dismounted maneuver, with the breach force employing quiet, manual lane reduction techniques. Coordination is of the utmost importance. All forces must know what event triggers the shift from clandestine to overt breaching, without this information they may be prematurely exposed to the enemy or to

friendly fire. Because surprise is critical, the key to conducting a breach clandestinely may require delaying suppression of the enemy until the last possible moment (depending on the enemy situation). For example, suppression of the enemy may be delayed until:

- The breach force is detected by enemy forces.
- The Breach Force is close to the obstacle and must expose itself in order to reduce the obstacle.
- Lanes are open and the assault force attacks.
- The Breach Force completes lane reduction and detonates charges to clear obstacles, signaling direct and indirect suppressive fire to support the Assault Force.

Clandestine breaching also requires withholding the use of obscuring smoke. Weather and darkness are the best concealment for clandestine operations. Security is achieved through stealth, which outweighs the need for speed. Silently eliminating enemy outposts provides additional security, but may give away friendly activity. Obstacle reduction must be conducted as silently as possible by using manual techniques vice mechanical equipment.

Section 3. Breaching Elements

Support Force

The mission of the support force is to suppress the enemy's ability to interfere with the actions of the breach force. The support force usually leads movement of the breach elements. After identifying the obstacle, it moves to covered and concealed areas and establishes support by fire positions. The support force leader sends a SPOTREP to the commander. This report describes the location and complexity of the obstacle, the composition of enemy forces that are overwatching the obstacle, and the location of possible bypasses. The commander decides whether to bypass or to breach the obstacle. He must keep in mind that a bypass may lead to an enemy kill zone.

In either case, the support force suppresses any enemy elements that are overwatching the obstacle to allow the breach force to breach or bypass the obstacle. All available assets, including artillery, air, electronic warfare, naval surface fire support (NSFS), and direct fire weapon systems should be used to suppress and obscure the enemy. As the breach and assault forces execute their missions, the support force lifts or shifts supporting fires. Because the enemy is likely to engage the support force with artillery, the support force must be prepared to move to alternate positions while maintaining suppressive fires. The support force may have reserve breaching and assault assets (line charges, track width mine plows, AVLBs, and armored combat earthmovers) that are intended for use only in the event the breach and assault forces become ineffective and to expedite reconstitution where multiple obstacles must be breached in quick succession.

The M1A1's range, armor protection and magnified sights allow it to carry out the support force role very efficiently.

Breach Force

The mission of the breach force is to create and mark lanes that enable the main attack force to pass through an obstacle to continue the attack. It is normally a combined-arms force which may include engineers, infantry, tanks, assault amphibious vehicles (AAVs), light armored vehicles (LAVs), and
armored vehicle launched bridges (AVLBs). The breach force must be capable of overcoming an enemy counterattack. Assets are allocated based on the number of lanes required. Two breached lanes per each battalion-sized task force are highly recommended. The commander of the breaching force should also plan for at least 50% redundancy in breaching equipment due to expected losses during opposed breaching operations.

The breach force is organized into an engineer reconnaissance team, security team, and obstacle reduction team, and a lane marking team.

- The engineer reconnaissance team verifies intelligence about the obstacles, locates the forward edge of obstacle zones so the rest of the breach force does not inadvertently enter the obstacle, and marks the standoff distance for explosive reduction.
- The security team provides local security when the breach force cannot be covered by the support force. Infantry, LAVs, tanks, and AAVs normally provide security while the engineers are reducing obstacles.
- The obstacle reduction team physically creates the lanes and proofs the lanes for mines, if required.
- The lane marking team initially marks the newly created lanes for passage of the assault force, the main attack force, and follow-on forces. The lane marking team is also ready to assume the mission of obstacle reduction if the obstacle reduction team is rendered ineffective

Once the breach force has reduced the obstacle and the assault force has passed through the lanes, guides are employed to conduct the handover to follow-on units. At a minimum, lanes must be marked and their locations and conditions reported to higher headquarters and follow-on units.

Proofing is verifying that a breached lane is free of live mines. This can be accomplished by checking the breached lane with a secondary breaching means other than explosives, such as probing, mine detectors, mine plows, or mine rollers. Proofing is done only when the potential risk of live mines remaining in the lane exceeds the risk of loss to enemy fire while a lane is being proofed. It is important to remember, obstacle reduction is the physical creation of a lane through or over obstacles.

Tank units may be some of the first units to move through the lane to provide security for the assault force on the far side of the obstacle. In some instances, the breach force may move to hull-down firing positions that allow it to suppress enemy elements

overwatching the obstacle. At other times, it may assault the enemy, with suppressive fires provided by the support force.

The following describes the breaching actions of a tank platoon:

A tank platoon can create a lane by itself if it is equipped with the assets required to breach the type of obstacle encountered. If the tank unit does not have this capability, it may be required to provide close-in protection for attached engineers with breaching assets. Three breaching methods are available to the platoon:

- Mechanical breaching, usually with mine plows or mine rakes.
- Explosive breaching, employing such means as the mine-clearing line charge (MICLIC), M173 line charge, or 1/4-pound blocks of TNT.
- Manual breaching, with Marines probing by hand or using such items as grappling hooks, shovels, picks, axes, and chain saws. Manual breaching is the least preferred method for the tank platoon.

In extreme cases, the commander may order the tank platoon to force through an obstacle. This technique requires the breach force to move in column formation through the obstacle location. If available, a disabled vehicle can be pushed ahead of the lead breach vehicle in an attempt to detonate mines.

The mine plow is the breaching device most commonly employed by the tank platoon. The battalion or company commander may allocate one to three plows per platoon. When properly equipped and supported, the platoon can create up to two lanes through an obstacle.

Plow tanks lead the breach force. Immediately following them are vehicles that proof the lane; these are usually tanks equipped with mine rollers. This process ensures that the lane is clear. (Note) If the location and/or dimensions of the obstacle are unknown, the platoon leader may choose to lead with tanks equipped with mine rollers to identify the beginning of the obstacle.

If the platoon is allocated one plow, the Platoon Sergeant’s wingman normally serves as the breach tank. The Platoon Sergeant follows immediately behind to proof the lane and provide overwatch. The platoon leader's section follows the Platoon Sergeant.

If the platoon has two or more plows, it can create multiple lanes, usually 75 to 100 meters apart. The wingman tanks are normally equipped with the plows, with the section leaders' tanks following to proof the lanes and provide overwatch (see Figure C-1).

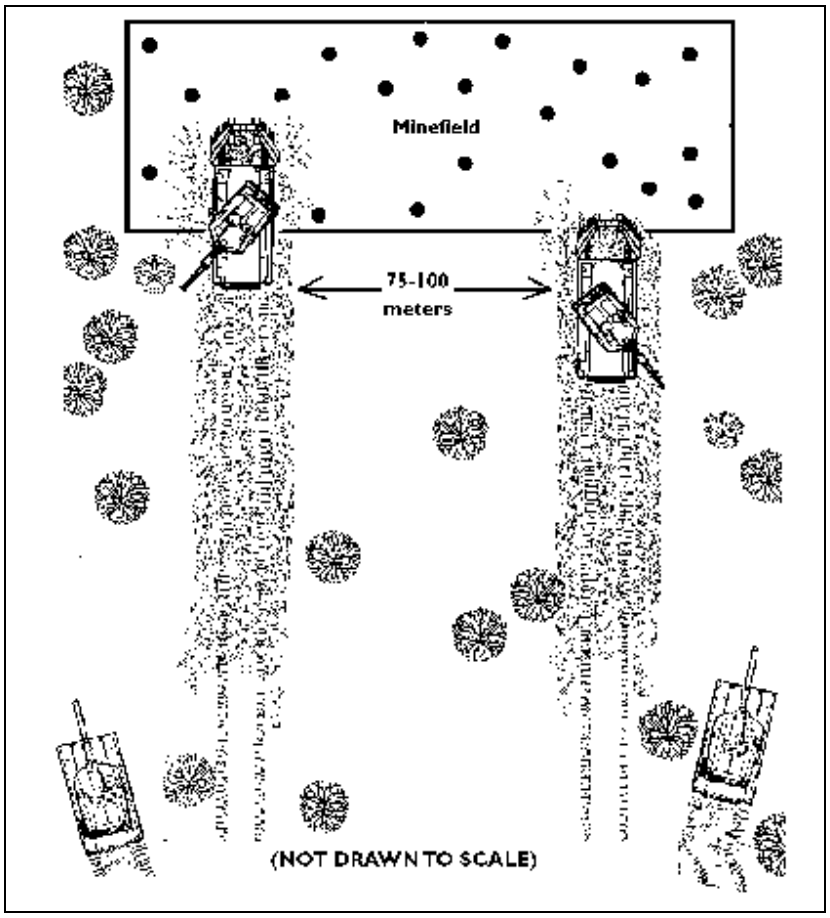


Figure C-1. Plow tanks create multiple lanes while the section leaders' tanks provide overwatch.

To create a wider lane, two plow tanks can stagger their movement along a single lane (see Figure C-2). This technique is also used in order to clear a lane that HMMWVs and other wheeled vehicles can go through without a center lane of mine-ridden spoil. Using Figure C-2 as a literal example, a wide lane with no center lane would be created on the right side of the double proofed lane.

NOTE: The lanes created on the left side would not be doubled proofed, and spoil from the second tank through would be put into the first tanks' right lane.

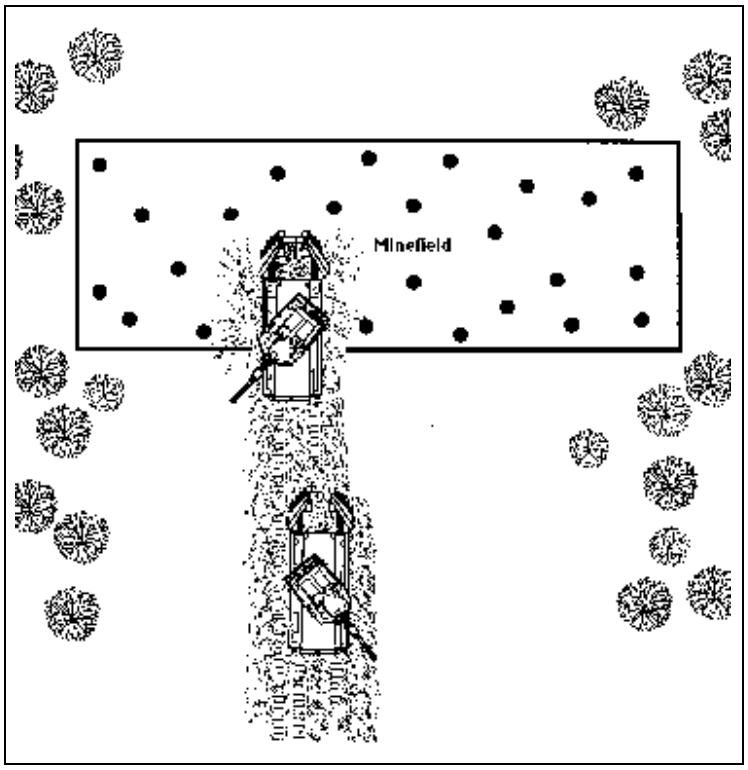


Figure C-2. Plow tanks use staggered movement to create a wider lane.

After a lane is created and proofed, it is normally turned over to attached engineers for marking. The platoon leader reports the location of the lane and the method of marking to higher in order to expedite the movement of the assault force. If no engineers are available, an attempt should be made to at least mark the entrance and exit of the breach using NATO marking procedure. Unit SOPs will dictate marking methods and materials, which commonly include the following:

- Engineer stakes with tape.
- Guides.
- Chem lights.

Throughout the operation, the platoon leader provides continuous updates of the breach force's progress to higher headquarters and other elements involved in the breach. He also coordinates with the support force for suppressive fires.

The assault force will often move behind the breach force and closely follow the breach vehicles through the new lane.

Assault Force

The mission of the assault force is to destroy or dislodge the enemy on the far side of the obstacle, or in between obstacle belts, in order to allow other combat forces to continue the attack. While the breach is in progress, the assault force assists the support force or

follows the breach force while maintaining cover and dispersion. Once a lane is cleared through the obstacle, the assault force moves through the breach. It secures the far side of the obstacle by physical occupation and/or continues the attack in accordance with the scheme of maneuver. The assault force must be of sufficient size to eliminate the enemy and should be a combined arms force consisting of elements such as: infantry, light armored vehicles, AAVs, tanks, and engineers. Fire control measures must be coordinated so Support Force and Breach Force fires are lifted and shifted as the assault force maneuvers into the enemy position.

Tank units are ideally suited for assault force operations against mobile enemy defenses in open terrain. Tanks also work well with mechanized infantry as an assault force attacking dug-in enemy positions in close terrain.

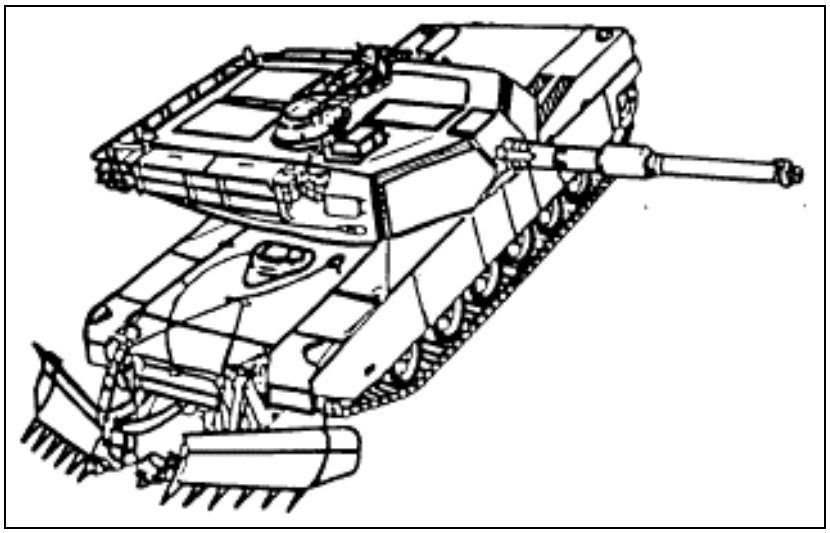
Section 4. Mobility Assets

The following paragraphs summarize the capabilities and limitations of the breaching assets available to the tank battalion.

Mine Plow - Also known as the mine-clearing blade, the mine plow is used to breach and proof minefields. The system affords good survivability. When fully operational, a tank equipped with a mine plow can quickly clear two 58-inch-wide lanes, one in front of each track.

NOTE: The plow's dogbone assembly will detonate the tilt rods of mines in the area between the two plowed lanes; however, only plows equipped with the improved dogbone assembly, known as the IDA, will defeat magnetically activated mines.

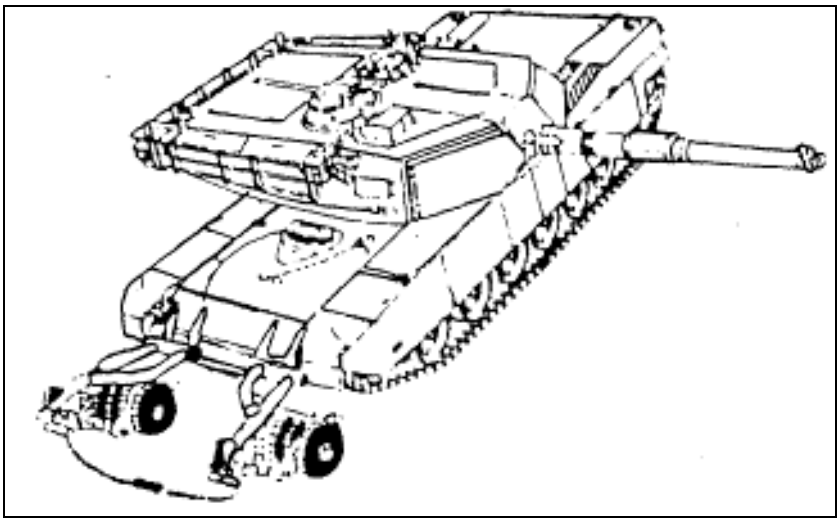
The plow must be dropped at least 100 meters before the tank reaches the minefield. It then is not lifted until the tank is at least 100 meters past the far edge of the minefield. The plow must have 18 inches of spoil to be effective, limiting the tank's speed to 10 mph or less in the lane. The mine plow should be used only in a straight line; it does not work well on hard, rocky, or uneven ground where it cannot maintain adequate spoil. Mine detonation can cause violent upward movement of the blade; the tank's main gun must be traversed to the side during plowing to prevent damage to the gun tube. The plow's lifting straps can become entangled in wire obstacles. Manual lifting of the plow takes at least 10 minutes.



Track Width Mine Plow for M1Al

Weight: 3 tons
Speed when mounted and lowered: <10 km/hr
Creates 58 inch cleared path in front of each track
Primary use: Clearing path through minefield
Lifts and pushes surface—laid mines or buried mines up to 4 inches deep in front of its path.

Mine Roller - THE mine roller is used to identify the forward edges of a minefield and to proof lanes. The roller sweeps a 44-inch path in front of each track and is also equipped with a dogbone assembly. It is also effective at breaching wire obstacles. The roller, however, is not effective on broken or uneven ground. The mine roller, like the mine plow, will not defeat magnetically fuzed mines unless equipped with the IDA. The main gun must be traversed to the side or rear when contact with a mine is possible or imminent; detonation can throw the roller (or pieces of it) violently upward, possibly damaging the tube.



Mine Roller for M1Al

Weight: >10 tons
Speed when mounted and lowered: 5-10 km/hr
Creates 44 inch path in front of each track
Primary use: Detection of minefields
Secondary use: Proof lanes created by other means (i.e., follow plow tank)
Designed to withstand 2 mine explosions (depending on type of mine)

AVLB - The AVLB is primarily employed to cross short gaps, such as narrow streams, antitank ditches, craters, canals, or partially blown bridges. Its span is 18 meters (60 feet) using prepared abutments and 17 meters with unprepared abutments. The capacity of the bridge is one military load class (MLC) 60 vehicle (this is waived for M1-series tanks in combat operations). The AVLB launcher, which requires 10 meters of overhead clearance for transportation and operation, is most visible and vulnerable during launching of the bridge. An experienced crew can launch the bridge in two to five minutes. Technical characteristics of the AVLB are provided in Appendix A.

MICLIC - Used to breach wire and mine obstacles, the MICLIC clears a lane 100 meters deep and 14 meters wide. (NOTE: The MICLIC must be fired 62 meters from the obstacle to get the full 100 meters of depth.) The charge may create two skip zones, where the mines are not detonated, on the right and left side of the centerline of the

cleared lane. The skip zones, which are about 1.5 meters wide, require all MICLIC lanes to be proofed. The MICLIC is effective against pressure-activated antitank mines and against mechanically activated antipersonnel mines. Effectiveness is limited against magnetically activated mines, including scatterable mines, and those with multi-impulse (double-impact) or time-delay fuzes. The MICLIC is not effective on severely broken ground where the line charge cannot lay flat. When detonated, the MICLIC has danger area with a radius of 1,600 meters.

ACE - Using its blade, the ACE can defeat berms and antitank ditches. The ACE can also skim a minefield with its blade; however, it is slow and vulnerable in this role and should be employed this way only as a last resort. The vehicle is further limited by its one-man crew.

Engineer Attachment - THE most versatile of all breaching assets, the engineer attachment can conduct explosive or manual breaches, proofing and can mark lanes through an obstacle. While it is conducting these breaching and proofing operations, however, the attachment is extremely vulnerable to enemy direct and indirect fires.

If other breaching assets are unavailable, an infantry or tank platoon can conduct explosive breaches (with hand-emplaced charges) and/or use manual breaching kits (normally consisting of grappling hooks, gloves, and wire cutters). At the same time, however, employment of either type of platoon organization in breaching operations has distinct disadvantages. The pace of the breach will be slow, and the operation will leave the platoon vulnerable to enemy attack.

Appendix D

Operations in Extreme Environments

General

Tank employment in changing operational conditions and environments present special problems and situations. The planners consider the capabilities and limitations of tanks, the principles of tank employment, and the conditions of the special situation. Each special situation may require modification in tactics and augmentation in equipment. For detailed discussions on operating tanks in varying conditions and situations refer to TM 5950-264-10 tank operations manuals.

Section 1. Jungle operations

MCWP 3-35.5 Jungle Operations addresses jungle operations in depth. Jungle combat involves operations with such impediments as swamps, undulating terrain, extreme heat, heavy rains and areas largely overgrown with thick tropical foliage. The conduct of combat operations in jungles requires a high degree of leadership and individual initiative to meet the problems imposed by climatic conditions, topography, and vegetation. The degree to which Marines are acclimated and are trained to live and fight in the jungle will contribute to a unit's success or failure. The basics of successful jungle operations are: decentralized control, flexibility, security, and intelligence.

The restrictive nature of the jungle environment impedes typical tank operations. Cover and concealment are excellent in this type of terrain and increase the possibility of achieving surprise. As a result both the attacker and the defender usually commit large portions of available forces to security missions. Key jungle terrain features include trails, navigable rivers, high ground, and existing commercial centers; none of which are considered optimal terrain for tank operations.

In the offense, security elements prevent surprise and protect the MAGTF. In jungles successful security force operations depend on proper implementation of security elements. Units find their direction of movement hard to maintain without navigation aids such global positioning system receivers. The thick foliage and rugged terrain of most jungles limit fields of fire ground movement speed, and the range of combat net radios and automated command information systems. Restrictions on observation and fields of fire may reduce the capabilities of tanks to acquire targets and deliver accurate direct fires. Additionally, the difficulties associated with jungle operations increase in proportion to the size of the force involved. These limitations drive the conduct of operations to the company, platoon and individual tank crew level.

The critical aspect of a defensive operation in a jungle environment is the security of the line of communications sustaining the MAGTF. To guard against surprise, the defending commander organizes his forces in depth. He secures or provides alternative routes around choke points and provides for the security of resupply convoys. He also ensures the all-around defense of units and installations operating in jungles and installations. The commander establishes a mobile reserve to counter unanticipated enemy actions. To

block enemy penetrations of his defensive perimeter, to counterattack, or to pursue a detected enemy.

Consideration for jungle operation include:

- The dense foliage and weather alter the effective ranges of weapon systems.
- Units must allow for slower movement and restricted fire support in their plans. The limited visibility common to jungles may make the observation and adjustment of indirect fires difficult.
- Heat, thick vegetation, and rugged terrain will tire Marines rapidly.
- Lack of roads will hinder resupply and evacuation in the absence of helicopter support.

Section 2. Desert Operations

Desert terrain varies considerable from place to place. Certain environmental characteristics such as extreme temperature ranges, lack of water, absence of vegetation, and dust /sandstorms are common to all deserts, and their adverse effect must be considered during planning. Highly mobile forces play a dominant role in operations in desert regions. Properly employed and maintained, the tank can be the most decisive supporting arm available to the MAGTF commander during desert operations. Tanks provide the freedom of maneuver in the vastness of these regions that favor a fluid type of warfare characterized by dispersed formations on extended frontages with considerable depth.

Desert topography may consist of loose sand and sand dunes that greatly impede the movement of vehicles; or it may have a hard surface that facilitates large mechanized formations. Successful desert operations require adaptation to the environment and to the limitations of its terrain and climate. Units must modify and adapt their equipment and tactics to a dusty and rugged landscape. MCWP 3-35.6 Desert Operations is the Marine Corps' primary reference on this subject.

Desert offensive operations tend to favor wide envelopments, fast and wide flanking movements by armored formations because of the freedom of maneuver. Because of the limited concealment offered by the bare terrain, units must attain surprise by use of deception, appropriate security measures, and rapid movement. Commanders exploit periods of limited visibility. Objectives may include enemy units, communications centers, supply bases, water sources, and key terrain features.

Defensive operations in these regions emphasize mobility and flexibility. Commanders should make provisions for long-range direct fire weapons, construction of extensive obstacle systems to canalize or slow the enemy, a high degree of mobility, and secure communications. The organization of the defense should emphasize measures against both air and armored attack.

The following additional considerations are necessary when planning tactical operations:

- Mobility is key to successful operations. Movement may be easily detected however, due to sand and dust signatures, reflections from equipment and minimal concealment.
- Long-range direct fire capability makes the tank an ideal weapon in desert terrain. The long-range fields of fire common to desert areas tend to allow all weapons systems to engage at their maximum range. These same extended engagement ranges hinder positive target identification.
- Dust is an observational, control and maintenance hazard to a maneuvering force.
- Land navigation may be difficult in the absence of navigation aids and current maps due to changing terrain features and minimal key landmarks.

Section 3. Mountain operations

Rugged, compartmented terrain with steep slopes and few natural or man made lines of communications generally characterized military-significant mountains. The compartmented terrain causes a corresponding compartmentalization of military operations. Mountain operations require special equipment, training, acclimatization of personnel to altitude conditions, and self-discipline to succeed. The mountain environment, with its effects on personnel and equipment, requires some modifications of standard tactics and procedures. MCWP 3-35.2 Mountain Operations is the primary doctrinal reference for these operations.

The focal point of mountain operations is to control the heights. Key terrain features normally include those heights that dominate lines of communications, mountain passes, roads, bridges and railroads. Fighting from higher ground gives the possessor distinct tactical advantages.

Control of dominating terrain protecting road nets or passes normally is the key to the organization of a defense in mountainous areas. Units must secure their flanks, any neighboring defiles, road nets, support areas, and tactical operations centers from infiltration and attack. Units require security forces, particularly observation posts and patrols, to prevent surprise.

Inherent in mountain operations are the difficulties that the terrain offers to movement. Operations in mountainous regions take longer than normal to plan and execute. Key mountain operational basics include:

- Communication and sustainment are increasing difficult to execute in rugged terrain. In general, operations in mountainous terrain retard and restrict maneuver, and make communications and resupply of tanks difficult.
- Defenses may have to locate on the military crest to fire into an engagement area. Mountain terrain can be either a dangerous obstacle to operations or a valuable aid, according to how well it is understood and to what extent the tank commander takes advantage of its peculiar characteristics.

- Night and periods of limited visibility are the best movement times due to the extended range of observation from enemy positions. Movement times are slower due to terrain and altitude effects. Any differences in elevation over the march route also have an impact on unit movement times.
- The terrain reduces the effectiveness of firepower.
- Centralized planning and decentralized small unit execution characterize operations because the terrain limits the commander's capability to directly control operations.

Section 4. Operations in Deep Snow and Extreme Cold

Deep snow and extreme cold weather present employment problems in operations involving tanks. This in turn increases engineer support requirements and may require the extensive use of airlines of communication. Combat operations in deep snow or extreme cold weather present two opponents: the enemy, who must be defeated, and nature, who must be made an ally. Planning and training can reduce the effect of the climatic conditions, but commanders and staffs must understand the penalties that these severe conditions impose on operations. Aggressive leadership and special training minimize many of the effects of cold weather operations. Many of the missions assigned to tanks are the same as those assigned in normal operation, and the tactics and techniques employed in offensive and defensive operations are similar. MCWP 3-35.1 Cold Weather Operations is the primary doctrinal publication on fighting in this environment.

Tactical employment is modified to offset the characteristics of the area and its weather. When planning tactical operations for execution during rigorous winter weather, commanders must carefully consider the probable effects of weather upon operations, the health of Marines, supply, evacuation, and the maintenance of lines of communication. Ice, deep snow and extreme cold weather modify the normal use of terrain features. Planning considerations during operations in snow or extreme cold weather include:

- Operations take longer than normal to plan and execute.
- The impact of cold on manpower.
- The impact of cold on weapons.
- The impact of cold and deep snows on mobility.
- Concealment and camouflage. Increased requirements for combat service support.

Appendix E

NBC Operations

Section 1. General.

Planning is critical to the success of any operation; therefore, all staff sections must make NBC an integral part of their operational planning process. One major factor that must be considered is the effects on individuals and operations once the unit enters a MOPP posture. The operational tempo will slow, Marines will require more rest and hydration to recover from physical exertion, and the possibility of heat casualties will increase. Proper planning will include all of the following:

Threat Analysis. A threat analysis focuses on the enemy's capabilities and willingness to use NBC weapons and includes the following:

- History of NBC weapons use.
- Availability of NBC weapons and support equipment.
- Production and stockpile of NBC weapons.
- Delivery systems.
- Doctrine and training.

Vulnerability Analysis. A vulnerability analysis focuses on U.S. forces and our weaknesses and includes the following:

- Effects of weapons on personnel and equipment.
- Type and size of weapons within range.
- Detection/warning systems available.
- Unit protection available.
- Personnel training levels.
- Unit location in relationship to the battlefield.
- Weather, climate, terrain.
- Medical supplies and services available.

MOPP Analysis. A MOPP analysis focuses on the effects of placing the unit into mission oriented protective posture and includes the following:

- The mission.
- Likelihood of a follow-on mission.
- Commander's acceptable degree of risk/percent of casualties.
- Likelihood and types of agents to be employed.
- Additional protection afforded/required.
- Expected warning time.
- Mental demands of work.
- Physical demands of work.
- Duration of mission.

Decontamination Site. The battalion scout platoon can be tasked to locate a decontamination site. The following are characteristics of a good decontamination site:

- Easy to find.
- Located on or along a hard stance road network.
- Access to a potable water source.
- Removed from the main battle area.
- Good cover and concealment.
- Access to a clean route out for decontaminated units.

Section 2. React to a Nuclear Attack

When a tank crew observes a brilliant flash of light and a mushroom-shaped cloud, crewmen must act quickly to minimize the effects of a nuclear detonation. This drill involves four steps:

Step 1. Take immediate protective actions, including the following:

- If mounted, button up and close the breech and ballistic doors. If time permits, position the vehicle behind a protective terrain feature and turn off the master power until the effects of the blast have passed.
- Dismounted crewmen drop to the ground and cover exposed skin until blast effects have passed.

Step 2. Implement SOPs and accomplish related actions in the following areas:

- Reestablish communications.
- Prepare and forward an NBC-1 report.
- Implement continuous monitoring.
- Submit a SITREP to the commander.

Step 3. Reorganize the platoon:

- Evacuate casualties and fatalities.
- Redistribute personnel as needed.
- Conduct essential maintenance.

Step 4. Continue the mission.

Section 3. React to a Chemical/Biological Attack

The tank crew initiates this drill during an operation whenever an automatic masking event occurs, the chemical agent alarm sounds, M8 detection paper indicates the presence of chemical agents, or a Marine suspects the presence of chemical or biological agents. This drill involves four steps:

Step 1. Crewmen recognize and react to the hazard:

- Put on protective mask (and hood) within 15 seconds.
- Alert remainder of the platoon and company.
- Within 8 minutes, assume MOPP 4, then button up and/or activate the tank overpressurization system.

Step 2. Implement SOPs in these areas:

- Administer self-aid and buddy-aid to platoon members with symptoms of chemical/biological agent poisoning.
- Ensure individuals decontaminate their skin.
- Conduct operator's spray-down and decontamination of equipment as necessary.

- Initiate continuous monitoring with M256 detection kits; submit NBC-1 and follow-up reports as needed.

Step 3. Continue the mission.

Step 4. Monitor for chemical/biological agents; as the situation warrants, initiate actions to reduce MOPP levels and discontinue agent monitoring.

NOTE: If the M256 detection kit records a negative reading inside an overpressurized M1A1 tank, the crew can initiate unmasking procedures.

Section 4. Decontamination

Successful avoidance and protection may prevent the need for decontamination, however, due to the large area of coverage of NBC weapons, the unit must be prepared to conduct decontamination operations. The primary purpose of decontamination is to restore the unit's combat power and reduce the number of casualties caused by NBC weapons. When planning decontamination operations, the following considerations should be taken into account:

- *Decontamination Principles*. The decontamination principles will be the controlling factors when planning and conducting decontamination operations.
- *Decontamination as soon as possible*. This will limit the effects of NBC agents by reducing exposure time and concentration on personnel and equipment.
- *Decontamination as far forward as possible*. This will limit the spread of contamination, thus reducing the possibility of contaminating units and personnel that have not been affected previously.
- *Decontamination only what is necessary*. Decontaminate only those items, or areas of equipment, that is considered essential for mission accomplishment. Do not attempt to decontaminate personal items or equipment that is not normally used.
- *Decontamination by priority*. Set priorities for decontamination according to the units' mission and the threat.

Detailed Equipment Decontamination

Battalion and Company Decontamination teams are responsible for the setup, operation (See note below), and closure of the DED portion of the thorough decontamination operation. The DED for chemical and biological contamination is comprised of five stations. For radiological contamination, the DED uses all but station 2, DS Application. Actions at each of the stations are described below.

NOTE: The crew of a contaminated M1A1 should remain buttoned up, inside the vehicle until the tank has completed every station of a Detailed Equipment Decontamination site.

Station 1, Initial Wash.

The objective of this station is to remove the gross contamination and dirt from the vehicle. The vehicle is sprayed for two to three minutes with hot, soapy water. The vehicle is then scrubbed to help remove caked-on dirt. The mechanical action of scrubbing also helps remove thickened chemical agents. Although the undersurfaces are difficult to reach, try to remove as much dirt as possible. After scrubbing the vehicle, spray again for two to three minutes to remove loosened dirt and contamination. This station will use approximately 250 gallons of water per vehicle. Vehicles with large quantities of dirt will use more water. The runoff from this station is contaminated and must be treated as hazardous. This station requires high water pressure systems (M12A1 PDDA, M17 LDS) rather than high water volume systems (65-gpm pumps). The effectiveness of the wash depends upon on the type of wash (hot soapy water, hot water, cold water, and steam).

b. Station 2, DS2 Application.

The objective of this station is to apply decontaminant to the entire vehicle. The vehicle is divided in four parts and a member of the scrubbing team is assigned that part of the vehicle. This limits the workload of each member of the scrubbing team and avoids duplication of work. DS2 is applied starting at the top of the vehicle and working towards the undercarriage. Every effort is made to apply DS2 to the undercarriage, especially if the vehicle has crossed a contaminated area. The mop is the least tiring method of applying DS2. Using a mop to apply DS2 creates a large amount of spillage. However, continual use of the M13 DAP requires the scrub team to exert more energy than using the mop. The M13 DAP can be used to apply DS2 in hard-to-reach areas.

Prior to the start of the decontamination operation, the scrub team pours 5-gallon cans of DS2 into 30-gallon trashcans if mops are going to be used instead of M13 DAPs. Each member of the scrub team will wear TAP aprons or wet weather gear to protect them from the DS2. Water adversely affects DS2's ability to react with chemical agents.

There must be sufficient DS2 on the item being decontaminated for complete neutralization to occur. The DS2-to-agent ratio needs to be 55 to 1 for H agents and 25 to

1 for G agents. For a vehicle the size of an M1A1 tank, this corresponds to 15 and 7 gallons, respectively.

The battalion decontamination crew should maintain a basic load of liquid all-purpose detergent, sufficient to decontamination 30 percent of the battalion's organic vehicles.

DS2 should be applied with scrubbing. Scrubbing increases the mixing of the agent with DS2, especially when thickened chemical agents are present.

c. Station 3, Wait/Interior Decontamination.

The objective of this station is to allow the DS2 to completely neutralize the chemical agent and to decontaminate the interior of the vehicle. Vehicles are moved to concealed position. Vehicles will remain in station 3 for no less than 30 minutes. While the vehicle is held in this station for the DS2 to completely react, it can be attempted to get the crew M8 paper and decontamination gear to begin decontamination of the interior, if required.

NOTE: Because of the M1A1's overpressurization system, the interior will most likely not be contaminated and the crew should remain in the vehicle until the entire Detailed Equipment Decontamination process is complete.

The best decontamination solution for use in the interior of vehicles is a 5 percent solution of HTH or STB. The driver wipes all reasonably accessible surfaces with a rag or sponge soaked in the HTH solution. Do not attempt to decontamination areas where there is little likelihood of contamination (electrical assemblies, beneath the turret floor, and so forth).

Once interior decontamination is completed and 30 minutes has passed, the driver moves the vehicle to the next station. Drivers must exercise caution when entering or exiting the vehicle.

For radiological contamination, use an AN/PDR27-series or AN/VDR2 radiac meter to determine the extent and location of contamination inside the vehicle. If there is contamination, determine the intensity of the contamination inside of the vehicle. If the contamination has an intensity greater than 0.33cGy (the negligible risk), the interior of vehicle must be decontaminated. Use hot, soapy water to wash the contaminated areas. Use a sponge to mop up the water and the contamination.

d. Station 4, Rinse.

The objective of this station is to remove the DS2 from the vehicle. The vehicle is sprayed with water from top to bottom. Take care to rinse the undercarriage. This station uses approximately 200 gallons of water. Failure to remove all DS2 from the vehicle may cause false positive readings at station 5. If high water pressure systems (M12A1 PDDA, M17 LDS) are not available, large volume water pumps (65-gpm pumps) should be used at this station.

e. Station 5, Check.

The objective of this station is to check the completeness of the decontamination. This station determines whether the vehicle has a negligible risk or still has significant contamination remaining. Detection procedures will vary depending on the type of contamination. If significant contamination is found on the vehicle, the vehicle will be recycled to station 2 for chemical contamination or station 1 for radiological contamination.

Hasty Equipment Decontamination.

a. Step 1. Interior Decontamination.

The crew should attempt to hastily decontaminate the interior of the tank with M291 and M258A1 personal decontamination wipes, if required and if time permits.

b. *Step 2. Exterior Decontamination.*

The crew of a decontaminated M1A1 should remain buttoned up in their vehicle until their tank has been thoroughly cleaned at a Detailed Equipment Decontamination site. However, if the crew should need to exit the vehicle or use equipment located on the exterior of the vehicle, the following procedures should be followed:

- While in MOPP-4, carefully open the loader's hatch, attempting to not allow chemical agents to leak into the interior of the tank.
- Using either the M11 or M13, DS2 decontamination apparatus decontaminate the hatch and immediate area around the opening.
- Use either the M11 or M13 decontamination apparatus to create paths from the loader's hatch to areas that need to be reached. Also a path should be made for the crew to be able to dismount the tank.
- Ensure that all weapons, hand holds and any exposed part of the vehicle that will need to be touched is decontaminated. However, conserve your supply of DS2, as you may need to execute the process again until your vehicle can be thoroughly cleaned at a Detailed Equipment Decontamination site.

M1A1 tanks are authorized an on-board decontamination apparatus. The operator's spraydown technique uses the M11 or M13 decontamination apparatus. The M11 is filled with 1-1/3 quarts of DS2 before use. DS2 comes in 1-1/3 quart cans (two authorized per M11 according to CTA 50-970) and in 5 gallon pails (two authorized per company-size element according to CTA 50-970).

Section 5. Unmasking Procedures.

Once the unit goes into MOPP level IV, unmasking will not be conducted unless approved by the Battalion commander. Once approved, the below listed procedures will be followed:

Selective Unmasking with a Chemical Detector

- Complete at least two (2) separate detection samples taken at different locations within unit position. All results must be negative.
- The senior man present selects two/three Marines of different size/weight/ethnic background and checks their physical condition.
- Disarm the Marines and place them in a shaded area. Ensure there is a corpsman present if available.
- Have the Marines remove their mask for five (5) minutes. Keep a close and constant watch for chemical agent symptoms while Marines are unmasked.
- After five minutes, have the Marines don and clear their mask. Monitor them for ten (10) minutes.
- After ten minutes, if no symptoms appear, begin selective unmasking within the unit.
- If at any time symptoms appear, stop the unmasking process and treat as appropriate.

Selective Unmasking Without a Chemical Detector

- The senior man present will select two/three Marines of different size/weight/ethnic background.
- Disarm Marines and place them in a shaded area. Ensure a corpsman is present if available.
- Have the Marines break the seal of their mask for 15 seconds, keeping their eyes open and holding their breath.
- After 15 seconds, have the Marine don and clear their mask. Monitor these Marines for ten (10) minutes. If no symptoms appear, continue. If symptoms appear, stop selective unmasking.
- Have the Marines break the seal of their mask once again and take four or five normal breaths.
- After taking four or five breaths, they will don and clear their mask. Monitor these Marines for ten (10) minutes. If no symptoms appear, continue. If symptoms appear, stop selective unmasking.
- Have the Marines remove their mask for five (5) minutes.
- After five (5) minutes they will don and clear their mask. Monitor these Marines for ten (10) minutes. If no symptoms appear, continue. If symptoms appear, stop selective unmasking.
- Begin selective unmasking within the unit.

Appendix F

Scout and TOW Platoons

Section 1. Scout Platoon.

Mission. The battalion scout platoon performs reconnaissance, provides limited security, and assists in controlling movement of the battalion. The platoon is not organized or equipped to conduct independent offensive, defensive, or retrograde operations. It operates as part of the battalion and should be assigned missions that capitalize on its reconnaissance capabilities. The scout platoon is one of the battalion commander's primary sources of combat intelligence before the battle and is his eyes and ears during the battle. Although the platoon has antitank (AT) capability, it cannot perform its scouting roles when employed as an AT force.

Organization The Scout Platoon is organized into a HQ Element and two sections. The HQ element consists of the platoon commander and platoon sergeant and their vehicles. Each section contains a section leader and two other vehicles.

Insert Organizational Diagram

Employment Fundamentals. There are six fundamentals requisite to the successful employment of the tank battalion scout platoon. The scout platoon should be employed with these fundamentals in mind:

- *Use maximum reconnaissance force forward.* Do not keep scouts in reserve. This does not mean scouts must be on-line and oriented forward; rather, all available scouts must be employed executing reconnaissance tasks.

- *Orient on the reconnaissance objective.* The platoon's scheme of maneuver is focused toward a specific objective or set of objectives based on the operations order and the battalion commander’s intent.

- *Report all information rapidly and accurately.* Commanders base their decisions and plans on the battlefield information that scouts provide during reconnaissance. Information loses value over time. Scouts must report all information exactly as they

see it and as fast as possible. They must never assume, distort, or exaggerate; inaccurate information is dangerous.

- *Retain freedom to maneuver*. Scouts must be able to maneuver on the battlefield. If the enemy fixes them, scouts must free themselves; otherwise, they can no longer accomplish their mission. Scouts must continually maintain an awareness of tactical developments. They must employ the proper tactical movement and react appropriately to unexpected situations. When contact is made, the platoon commander must seek to develop the situation at the lowest possible level, retaining the initiative, the ability to continue the mission, and the ability to maneuver his other elements.

- *Gain and maintain enemy contact.* Scouts seek visual contact with the enemy on favorable terms. They employ sound tactical movement, target acquisition methods, and appropriate actions on contact to see the enemy first and thereby retain the initiative and control of the situation. Once scouts find the enemy, they maintain contact using all available means until their commander orders them to do otherwise or as required by their specific instructions.

- *Develop the situation rapidly***.** Whether scouts run into an obstacle or the enemy, they must quickly determine what they are up against. If it is the enemy, the scouts determine the enemy's size, composition, and activity. They find the enemy flanks. They find any barriers or obstacles surrounding the enemy position and find out if any other enemy forces can support the position. If the scouts encounter an obstacle, they find and mark a bypass or, if appropriate, execute or assist in a breach. This all must be done quickly, with a minimum of guidance from higher. Time is the scout's most precious resource; he cannot waste it if he is to achieve mission success.

Capabilities and Limitations.

a. Capabilities. In addition to its primary missions, the scout platoon can:

- Conduct liaison.
- Perform quartering party duties.
- Provide traffic control.
- Conduct chemical detection and radiological survey and monitoring operations as part of a nuclear, biological, and chemical (NBC) defense.
- Conduct limited pioneer and demolition work.
- Participate in area security.

b. Limitations. Some limitations on the scout platoon are:

- The scout platoon is dependent on its parent unit for combat support (CS) and CSS augmentation.
- The HMMWV scout platoon can reconnoiter only two routes simultaneously (reconnoitering for trafficability only).

- The scout platoon reconnoiters a zone 3 to 5 kilometers wide. METT-T conditions may increase or decrease the size of the zone for either type of platoon.
- During screening operations, all scout platoons are limited in their ability to destroy or repel enemy reconnaissance units.
- The HMMWV scout platoon can man up to six OP's for short durations or up to three OP's for long durations.
- When properly organized, scouts can conduct effective reconnaissance and security patrols. The HMMWV scout platoon has a very limited dismounted capability. It must be properly task organized to conduct dismounted operations.
- The distance the scouts can operate away from the main body is restricted to the range of communications and the range of supporting indirect fire.
- The scout platoon has limited obstacle creation ability and carries a basic load of demolitions.
- The scout platoon has very limited obstacle breaching capability (limited to hasty point obstacles).

Section 2. TOW Platoon.

Mission. The primary mission of the antitank TOW platoon is to provide counter-mechanized support, utilizing the TOW to engage and destroy enemy armored vehicles, particularly tanks. When not performing its primary mission, the antitank platoon may assume a secondary mission of engaging other point targets or providing limited security to the commander in the form of a screen or OP's.

Organization Update to reflect the "newest" TO/TE (with pictures)

Insert Organizational Diagram here.

Methods of Employment. The TOW platoon may be employed as an organic unit for a specific mission such as setting a screen or a blocking position but will typically be broken down into sections, which are then attached in direct or general support to individual tank or infantry companies. The long standoff of the TOW weapon system lends itself to covering likely avenues of approach for armored vehicles, freeing up tanks to conduct offensive missions.

Capabilities and Limitations.

a. Some advantages of the TOW weapon systems are:

- The TOW weapons system can be manpacked to obtain an advantageous firing position not accessible while mounted, but only for short distances due to the heavy weight of the system.
- Engaging at its maximum effective range does not significantly decrease the TOW's accuracy.
- The TOW 2B has a fire down munition that can penetrate a vehicle's armor where it is thinnest, on the top.
- The TOW weapon system contains a thermal sight that provides enhanced capability at night and during limited visibility.
- Unlike kinetic energy antitank weapons (sabot), the TOW missile does not lose power in direct proportion to the engagement range.

b. Some limitations of the TOW weapon systems are:

- TOW weapons should be employed in squads (two launchers) as a minimum, so that the crews can provide mutual support.
- Cover and concealment are extremely important since the TOW is vulnerable to both direct and indirect fire.
- The TOW produces a large amount of backblast, which must be taken into consideration when planning firing positions. Clearing the backblast area of loose debris or watering the area down can help reduce the signature.
- The TOW has reduced range when firing over water obstacles.
- The TOW cannot fire on the move and the gunner must keep his sights on the target throughout the time of flight, 14-16 seconds to reach maximum range.

Appendix G

Acronyms and Abbreviations

A	
AAV	Amphibious Assault Vehicle
AO	Area of Operation/Air Officer
ALO	Artillery Liaison Officer
APFSDS-T	Armor Piercing Fin Stabilized Discarding Sabot - Tracer
API-T	Armor Piercing Incendiary - Tracer
ASP	Ammunition Supply Point
ATGM	Anti-Tank Guided Missile
B	
BHL	Battle Handover Line
BLT	Battalion Landing Team
BP	Battle Position
BZO	Battlesight Zero
C	
C2	Command and Control
CAX	Combined Arms Exercise
CLP	Cleaner Lubricant Protectant
COC	Combat Operations Center
CP	Command Post
CS	Combat Support
CSS	Combat Service Support
CSSG	Combat Service Support Group
D	
DACT	Digital Automated Communications Terminal
DLIC	Detachment Left in Direct Contact
DS	Direct Support
E	
EA	Engagement Area
EAPU	External Auxiliary Power Unit
EDL	
F	
FA	Field Artillery
FEBA	Forward Edge of the Battle Area
FLOT	Forward Line of Troops
FRAGO	Fragmentary Order
FS	Fire Support

FSC	Fire Support Coordinator
FSCC	Fire Support Coordination Center
FSCL	Fire Support Coordination Line
G	
GCE	Ground Combat Element
GPS	Global Positioning System
H	
HEAT-MPAT	Heat Multi-Purpose Anti-Tank
HEAT-MP-T	High Explosive Anti-Tank - Multi-Purpose - Tracer
HMMWV	High Mobility Multi-Purpose Wheeled Vehicle
I	
IFV	Infantry Fighting Vehicle
J	
K	
L	
LAV	Light Armored Vehicle
LCAC	Landing Craft, Air Cushion
LCU	Landing Craft, Utility
LD	Line of Departure
LHA	General Purpose Amphibious - Assault Ship
LOA	Limit of Advance
LOGPAC	Logistics Package
LP	Listening Post
LRP	Logistics Resupply Point
M	
MAGTF	Marine Air-Ground Task Force
METT-T	Mission, Enemy, Terrain and Weather, Troops and Fire Support Available, Time
MEU & MEU (SOC)	Marine Expeditionary Unit & MEU (Special Operations Capable)
MIMMS	Marine's Integrated Maintenance Management System
MOUT	Military Operations in Urban Terrain
MPF	Maritime Pre-Positioning Force
MSR	Mission Support Request
MSSG	MEU Service Support Group
MTO	Motor Transport Officer

N

NEO	Non-combat Evacuation Operation
NGK	Naval Gunfire Officer
NLP	No Later Than

O

OMITS	Operational Maneuver from the Sea
OP	Observation Post
OPSEC	Operations Security

P

Q

R

RFA	Restricted Fire Area
RFD	Restricted Fire Line
ROE	Rules of Engagement

S

SINCGARS	Single Channel Ground/Air Radio System
SOP	Standard Operating Procedures
SOS	Suppress, Obscure, Secure, Reduce
STD	Standard
STOMA	Ship To Objective Maneuver

T

TBD	To Be Determined
TC	Tank Commander
TRAP	Tactical Recovery of Airplane Pilot
TRAP	Terrain Reference Point

U

UMP	Unit Maintenance Collection Point

V

W

X

Y

Z